

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[PRICE 6D.

RAILWAY SIGNALS.—In last week's Journal we gave a description of an invention by Mr. Edwards, of Cambridge, for facilitating communication between passengers and driver—which has elicited the following letter from Mr. J. Addison:—"Sir, Having perused the remarks in your paper on Mr. Edwards' invention of a signal for railway carriages, permit me to inform you that I suggested to some friends in town the same sort of plan upwards of a year and a half ago, but which I was prevented bringing forward by one of them stating that he felt assured that it would never be adopted, as it would often be made use of by timid travellers when there was no necessity, and thus causing unnecessary delay and alarm. The following is the plan I allude to:—The day signal is a piece of black tin a foot square, painted red, and fixed to the end of a small iron rod 2½ feet long, and elevated when making a signal by a spring, on the principle of that which forces the bayonet of a pistol into its proper position when required. The night signal is the carriage lamp, elevated when required to make a signal by means of a spiral spring. It is unnecessary, however, at present to enter into further detail on the subject, as I quite agree with you, Mr. Editor, that the signal we are most in want of is one for keeping up a rapid communication, and one always to be depended upon, betwixt the guard and engine driver; and this I think can be easily accomplished, in the following manner:—Instead of the guards being placed as at present, which I consider a very indifferent position for the purpose intended, I would place the guard near the rear-most carriage, and one in front of the luggage van (the latter being absolutely necessary) face to face, thus placing him (the latter), within speaking distance of the stoker and engine driver; and this I consider is all that is required for accomplishing the object in question. There would, of course, be another guard, as usual, to keep a good look out forward. The rear-most guard would have a day signal on the top of his box nearly similar to that already named, the only difference being the size of the tin, which ought to be 1½ foot square; and at night, by drawing back a slide masking a brilliant green light, also placed on the top of his box, a signal would be produced so conspicuous as could not fail being instantly observed by the guard on the luggage van facing him."

RAILWAY SIGNAL.—The numerous accidents which have lately occurred on railways might, in all probability, have been prevented, had more attention been given to the different signals which are from time to time being brought before the notice of railway directors. Amongst these we have great pleasure in noticing an invention of Stephen Reed, Esq., of this town, which is very simple in its construction, and can be managed by the mere action of pulling a lever or a string. It is a staff, contained in a case, to be affixed to the railway carriage outside, above the door, a flag being attached thereto. On pressing the lever inside the carriage, or, if necessary, pulling a string, the flag and staff start forward from the side of the carriage at a right angle, and become fixed. The guard, therefore, cannot avoid seeing it; and, in case of any accident, either by fire, the breaking of a spring, or other cause, can either stop the train, or travel to the carriage, and ascertain the reason of the signal. This signal has been seen by some of the railway authorities, who readily gave their opinion in its favour, but doubt its usefulness, for the ease with which mischievous passengers might unnecessarily stop the trains by its use; but this objection might easily be obviated, by the imposition of a fine in such cases. Mr. Reed has devoted much attention to this and other means of safety, where life is in danger; and, from the completeness of the present invention, it is to be hoped that it will not be passed over by those whose duty it is to prevent, if possible, accidents on railways.—*Newcastle Journal.*

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REVIEWS OF THE WORK.

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On the Mining and Working of Collieries.

BY HARRISON BURN, MINING ENGINEER.

[No. XVI.—Continued from the Mining Journal of the 23rd September.]

ON THE DIFFERENT SYSTEMS OF WORKING, WITH THEIR RESPECTIVE RESULTS.

DETAILS OF PILLAR AND STALL WORKING.—Having adverted to the various systems of working, and having shown that the pillar and stall possesses great general advantages over the broad-wall, I will proceed to detail the process of laying out and carrying on an extensive colliery upon the most improved principles of the day; but, considering that this is an elementary work, it is necessary to enumerate the principal standards—viz., that the working boards or stalls be 4 or 5 yards wide, and the cross holdings 2 yards; that the process of getting the coal is first to cut along the bottom from side to side, for the space of 30 or 40 in., and at a convenient height for the sitting posture of the bower. He next makes a similar groove, up one or both sides of this board, and then wedges or blasts down the whole mass. In many cases, where the coal is tender, the process is carried out without either wedging or blasting. From the natural high temperature of the mine, and necessary exertion of the collier, he works in nearly a state of nudity—hence the great loss of life in case of fire from inflammable air. The Newcastle collier, who procures the coal at from 6d. to 1s. 6d. per ton, according to the peculiar circumstance of the mine, has nothing to do with conveying them to the shaft—that is done by the putter, who fills the coals into tubs, and either conveys them to the shaft or to the nearest horse-road. He also works by the piece, and for which he gets from 2d. to 3d. per ton. Over and above the ordinary tonnage price for the regular working, the collier has certain extra allowances—for instance, in places less than the ordinary width, he has so much per yard for working two in a place, or for working where it is wet so much extra per tub, also for bad roof, working with safety-lamps where he cannot blast; but as these conditions vary with each different case, it is scarcely material to go into detail. The tubs, or corves, in all extensive collieries, are collected together at certain depôts, and either transferred on to rollers, or by the modern practice of continuous railways, brought to the shaft by horses and drivers. These boys are paid from 1s. 4d. to 1s. 6d. per day; and one or more persons are employed at the shaft bottom to arrange and dispatch the work. The railway ways are necessarily incommoded with doors, which are kept by little boys, earning 10d. per day, and the whole arrangements are overlooked by an overman, with an adequate staff of deputies, whose business it is to attend to the safety of the people, and the furtherance of the work—one or other of the party being present the whole time the people are employed. The labour performed by the putters in the level collieries is truly surprising. At the average distance of 180 yards, their price is about 1s. 6d. per score of 20 tubs, carrying 7 or 8 cwt. each; and an ordinary putter will, for a day's work, convey 80 of such tubs, which will amount to 16 or 18 miles per day, and upwards of 30 tons conveyed. It is only in thin seams, the putting is thus degrading. In many cases they are obliged to crawl upon their hands and knees, with a strap around the body, and a chain passing between their legs, by which they drag the tub. The indecency of this degrading system was further aggravated by the employment of females, which was amply set forth and published by the commissioners who examined the collieries, prior to the passing of Lord Ashley's Bill for their exclusion, in 1843. With respect to the wages of colliers, much depends upon demand and supply. In the year 1804, so great and unexpected was the pressure for pitmen, in consequence of the opening of new collieries, that 18l. or 20l. bounty were given for a year's engagement, besides an exorbitant increase to the tonnage prices, as well as a corresponding advance in other colliery labour. The yearly hirings, accompanied with house and fire-coal at a very cheap rate, had continued for many years previous to the year 1845, but the improvident strike of that year was the means of abolishing this desirable arrangement, and substituting, in its stead, a monthly notice. At present their wages, when fully employed, are 4s. to 5s. per day, so that they are still better off than most labouring people. Of late years their moral habits have been greatly advanced by the introduction of schools.

DETAILS OF WORKING.—Before entering upon this part of the subject, I may first premise that, in the preparatory measures of laying open a coal-field for working, each system demands at least one uniform arrangement—viz.: That a pair of drifts, or levels, a few yards apart, must be pushed forward in width, height, and direction, according to the circumstances of the mine. These drifts communicate with each other at intervals, for the purpose of ventilation, by which means the current of air is made to pass inwards by one drift, and outward by the other. In the early working of collieries, the coals were brought direct from the heaver to the shaft, but as the collieries became extended, horses were employed, not only to draw baskets upon rollers with broad wheels to and from the interior of the workings, but also along railways to the shaft, the basket being transferred from the inby rollers to the railway waggons, by means of cranes. When the baskets were superseded by tubs, the cranes were dispensed with, and platforms covered with iron plates were employed, on which the tubs were run on to the railway rollers, which were fitted up for their reception, and upon arriving at the shaft they were again run off into the cage; but as this method was beset with disadvantages, it became desirable to avoid the necessity of transfer; therefore the tramway was superseded by edge railways, and the tubs were brought direct from the working place to the shaft bottom. Such is the general principle upon which the extensive mines in the North are laid out, and for the following reasons:—1. It is always inconvenient, and frequently dangerous, to push on separate workings more than 20 or 30 yards in advance of the air current; therefore these successive intersections serve to bring the circulation freely amongst the workmen.—2. By the intersections, the tramways are enabled to be husbanded, so as to render certain roads available to the working of many places, which operates beneficially with respect to the labour of laying down and taking up as the works proceed.—3. By this arrangement, each workman is provided with an independent working place, clear of the confusion and inconvenience attending the long-wall system.—4. By the coal-field being reduced into a series of pillars, their future working is facilitated, by being enabled to attack one at several points at once, which has a tendency to produce a large quantity from a limited extent of mine, and thus to confine, as much as possible, the roof pressure to the individual pillars in course of working. These, then, are the chief advantages of the board and pillar system, the adoption of which has given the collieries of the north of England such extraordinary powers of production, because, in an extensive field, the principal horse-roads radiate from the shaft into various districts, each of which holds an independent working, whether in the first, second, or mixed stage. At the same time it must be admitted, that this otherwise admirably system is sometimes carried to an extreme, by attempting to compass an extent of mine too great either for economy or safety, inasmuch as every stage of this process demands to be accompanied with ample ventilation, and, in proportion, as gobs or goaves are increased, so also does the difficulty increase of avoiding danger. With respect to the proportionate size of the pillar to the board, much depends, as I said before, upon various circumstances; but as depth from surface forms a consideration, I beg leave to adduce proportions which may be said, in practice, to be adequate to the substantial support of the workings, until the proper time arrives for taking away the pillars.

Scale for First Working, with design of afterwards taking out the pillars—the width of principal workings being five yards, and cross holdings two yards.

Fathoms deep.	Size of pillars.	Proportion left in pillars.	Fathoms deep.	Size of pillar.	Proportion in pillars.
20	20 by 8	41	180	26 by 14	69
40	30	6	300	26	16
60	22	7	320	22	18
80	22	8	340	24	20
100	22	9	360	20	21
120	22	10	380	30	22
140	24	11	400	30	24
160	24	12	420	40	29

The Monkwearmouth Colliery, at the depth of nearly 300 fathoms, is working with five-yard openings, whilst the block of coal is left 40 yards by 39.

Again, a most important item in the consideration, is the angle at which the coal-seam lies. In flat collieries, the greatest possible pressure is imposed, as well as the greatest retention of moisture, whilst pressure in the steep collieries is relieved in proportion to the inclination. In the Mostyn Collieries before-mentioned, the workings were found to stand quite well at the depth of 60 fms., with a pillar consisting of 45 proportions, but when any circumstance took place to weaken these pillars, it was followed by a creep. With respect to the working away of pillars, objections may prevail similar to those applying to long-wall, and, if well founded, then the

working should be confined to the principle of procuring as great a proportion of coal as possible by the first working—viz.: if the nature of the coal be soft, and the roof brittle, with a soft spungy floor—if there be reason to dread the bringing down of water either from the surface or from upper workings—if there be danger of damaging upper seams by fracture of the strata—the discharge of inflammable air, or the damaging of buildings on the surface. The effect of working the lower seams first is not always disadvantageous to the upper strata, for it afterwards may be the means of draining it, especially amidst the clunch strata of Staffordshire. All these observations, therefore, tend to prove how highly important it is, that the working of coal mines be directed by persons practically conversant, and scientifically taught, so as to weigh the various peculiarities, and testify the improvidence of persons attempting to wield such great interests, without the above-mentioned qualifications.

[To be continued in next week's Mining Journal.]

THE GOLD AND COPPER MINES OF NEW MEXICO.

Our readers generally will remember that, under the instructions of the War Department, Lieut. Abert, last year, made an exploration of New Mexico. The report of his tour, published by order of Congress, is a most interesting and valuable document, abounding not only in the events of the war in that quarter, but containing an immense amount of scientific information concerning the natural history, habits of the people, resources, structure of the language, &c., of a large portion of that new, vast, and before unexplored region of country. At Santa Fé, Lieut. Abert set off with Lieut. Peck, of the Topographical Engineers, on the 29th of Sept., to visit the mines, which lie 30 or 40 miles south of Santa Fé. The following are the details of their visit:—

In company with Mr. Dallum we started this morning on a tour of exploration; a quarter of a mile up the ravine we entered another little town, our way was on all sides full of holes, and sometimes deep wells that had been sunk in search of the precious metal. We saw many miserable-looking wretches, clothed in rags, with an old piece of iron to dig the earth, and some gourds, or horns of the mountain goat, to wash the sand; they sit all day at work, and at evening repair to some tienda, or store, where they exchange their gold for bread and meat.

We now reached the house of a Frenchman, who seemed to be most extensively engaged in mining; he had three mills, and one was then at work. This mill, a specimen of all the others, was of rather rude construction, it consisted of a circular pit, 10 ft. in diameter, and about 8 in. deep, the sides and bottom lined with flat slabs of stone. In the centre of this pit an axis was erected, from which three beams project horizontally; to the longest arm a burro was attached; to the other, large blocks of stone were attached with cords, so that their flat surfaces were dragged over the bottom of the pit. The ore here found is in quartzose rock; it is broken into small pieces and thrown into the pit, water is also poured in, and a donkey holds his monotonous round; the mixture now attains the consistency of thin mud; 2 ozs. of quicksilver is thrown in, this forms an amalgam with the gold, and when the pit is cleared from the water, the amalgam is collected from the crevices between the stone slabs, it is tied up in a piece of rag or buckskin, thrown in a crucible, and the mercury sublimed. Around this mill we found iron ore of remarkable purity, which is dug with the gold. The proprietor of this mine very generously gave us as many specimens as we wished. The gold exists in small particles visible to the eye, scattered through the quartzose rock.

We now proceeded to the mines; here we found deep wells, they are ascended and descended by the means of notched pine trees that extend diagonally across. I procured a specimen from a vein that had just been struck; these pieces had a smoky appearance as if produced by the flame of a candle, but the stain is indelible. The mountain sides were scattered with fragments of granite and rocks containing gold. We now returned to the house of our entertainer, who refused to receive any remuneration for the trouble we had caused him, and who gave us many specimens of the ore. Having taken our leave, and enquired our route to the new mine, or Tuerto, as it is generally called, I suppose from the crooked stream that runs near, we set out on a difficult path across the mountains. We passed up a steep ravine, so steep that the rolling stones had worked a straight road, that looked as if timber had been dragged down the hill side. As our mules climbed up, the loose stones came clattering down; we soon reached the summit, and commenced the descent; here we saw much dark blue limestone, some, in fact, almost black. On the road we met Señor Don Jose Chariz, of Padillas; he was going to the same place whither we were bound. We soon entered the valley that separates the two ranges of mountains, in which the gold mines are located.

From this place we had a fine view of the mountains, and one is struck with the arrangements of the lines, they being nearly straight, and running up pyramidally, showing the loose sandy nature of the soil. After a ride of eight miles we reached the village of Tuerto, and enquired our way to the house of Mr. R. Campbell, where we were kindly received and most hospitably treated. He showed us some fine specimens of native gold, that had been found in the neighbouring valleys, and were scattered through the detritus that is formed by the crumbling down of the auriferous rocks of the mountain—one specimen was worth \$15.

In the evening we visited a town at the base of the principal mountain. Here, mingled with the houses, were large mounds of earth thrown out from the wells, so that the village looked like a village of gigantic prairie dogs. Nearly all the people there were at their wells, and were drawing up bags of loose sand by the means of windlasses. Around little pools, men, women, and children, were grouped, intently poring over these bags of loose sand, washing the earth in wooden platters, or goat horns. One cannot but feel pity for these miserable wretches, and congratulate himself that he does not possess a gold mine; even the life of the poor pastores is much preferable to that of these diggers of gold.

Tuerto contains about 250 inhabitants. It is situated on a ravine, that just furnishes sufficient water for this place and the town at the base of the mountains, which is 1½ mile distant. Some of the people own large flocks of sheep, which they keep in the valley of Pecos.

We started on the 1st inst. to examine the mines of the new places. Mr. Campbell kindly furnished us mules, in order that ours might have an opportunity to rest and to graze. We first visited a lead mine, situated near the road that runs to St. Antonio; it is in a direction nearly south, situated at the foot of the mountains, and overlying a bed of fossiliferous limestone. We collected specimens of the lead ore and the limestone, then, proceeding easterly, commenced ascending the mountain. Our course now changed towards the north; near the summit of the mountain we visited a large copper mine. Mr. Campbell proceeded to enter with great caution, and told us that he feared least some evil disposed Mexican should be lurking in these caverns; for there were many discontented spirits about the country trying to revolutionise the people, and some were said to dwell in these mines and caverns. We found beautiful specimens of ore of copper of various kinds. Mr. Campbell ground up some, with the aid of a couple of stones, and, after a little washing, showed us a great many particles of gold and of silver—indeed, the ore was quite rich with these metals.

This vein runs through a compact limestone, that is worn as if a water once ran through the place now occupied by the ore. The projecting pieces of rock are rounded, and the sides of the passages worn into deep sand fissures, that our host calls pockets, and he tells us that in them the richest ores are found. Around the mouth of the mine we saw pieces of carbonate of lime scattered; they had been dug out with the copper ore.

We now continued our northern course across the mountain, and soon commenced to descend, and in our route stopped at Mr. Campbell's gold mine. Here the ore is composed of a very porous and vesicular rock, that crumbles with a slight blow, and one can easily break off pieces with the hand from the roof or side of the mine. The vein is nearly horizontal, and its bearing a little north of west, and runs through compact limestone. The sides of the mine are full of pockets and rounded projections.

Mr. Campbell says, the ore found near the surface of the earth proves the richest, and that he finds the gold does not defray his expenses when he penetrates to a great depth. Here, too, we found carbonate of lime. It occurs in rhomboidal crystals. These mines are much more extensively worked than those of Real Viejo, and notwithstanding the scarcity of water, I have been told by several persons, that not less than 2000 people congregate here in the winter season, when they can get water from the snows. These workers spend the greater part of their time underground, living on *atole*, a diluted kind of corn mash, sometimes coming forth to the light of day, when they wish to sell the products of their labour.

The value of these veins cannot be very well estimated now, as there have been many improvements in the methods of getting gold, which, when adopted at these mines, may produce a great increase in their annual yield; at present none of the owners of these gold mines have ever become

wealthy by their mining operations, and I have met several who have sunk all they had in searching for gold. Mr. Campbell tells me, that he got from his well one piece worth \$700, and at another time a piece worth \$900. These were at first carried off by the workmen, but were of such value, that the whole truth with reference to the theft was exposed, and our host recovered his property.—*Lake Superior News.*

CONDIE'S PATENT IMPROVED STEAM-HAMMER.

Amongst all the various purposes to which steam-power has been applied for the use and convenience of man, and for the lessening of human labour, those which are most universally appreciated, and least objected to, are the engines which propel vessels at sea, and those which carry their lengthy freights of waggons on land. Every person can in these cases understand the magnitude of the power, from the weight acted upon, and the speed and certainty with which journeys are accomplished. It requires no scientific skill to know that voyages are performed now, by the help of the steam-engine, which, but a few years ago, often occupied weeks for days. The dates of news brought from America, and from the West and the East Indies, bears incontestable evidence to the almost miraculous powers of the motive agent. And the hourly arrival and departure of trains from the termini of railways, and the arrow-like progress of these trains, force conviction upon the least observant with every stroke of their engines. It almost seems as though the fixed laws of gravity were set at defiance. Again, so many people have been employed, and have had opportunities of seeing the mechanical appliances of the spinning machine, and the power-loom, that these inventions have become part and parcel of the common stock of ideas. But there are hundreds of purposes to which steam has been applied, which, when seen for the first time, suggest strange reflections, and excite feelings of terror and astonishment. Not to mention any others, we beg to call the attention of our readers for a few minutes to the steam-engine as applied to the manufacture of iron. We will not speak of its use in bringing the ore from the deep recesses of the mine, nor as furnishing a continuous column of heated air, to assist combustion; but let us suppose that the smelting furnace has disgorged its many tons of pig-iron—let us also keep in mind the amount of malleable iron wanted for the purpose of making boilers, shafts, cranks, piston-rods, &c., for the gigantic steam-vessels which pass across the Atlantic and the Indian Oceans, besides the innumerable river and coasting steamers. We must, then, inevitably come to the conclusion, that mere manual power can never accomplish 1000th part of the work. It is, perhaps, universally known, that iron can only be made malleable after being brought into the state called pig, or cast-iron, by a process of puddling and hammering. This process is necessary, that the iron may be cleansed from the scoria, or slag, as it is called. In the early history of the iron trade, the hammering was all done by human power, and had the requirements of society remained as they were in such times the same power might have sufficed. But new wants were continually springing up, and new contrivances to save the exercise of muscles and sinews were found out. Until, however, the invention of the steam-engine, the quantity of iron in demand was so small, when compared with what it has now become, that the same means which were adequate before the period of that invention could by no possibility have been made to serve the purposes of the present time. The steam-engine, while it provided a means whereby the available force of the world could be increased almost to infinity, made it necessary that the steam-engine itself should be brought into requisition to supply materials for the making of more engines. The masses of iron which had to be hammered into a malleable condition for the purpose of saving time and fuel, increased in size, in proportion to the greater size of the machines to which they had to be applied.

Many instruments have been made of enormous weight and power for making malleable iron, but until the invention of hammers, set in action by steam, the supply of iron was exceedingly limited. Immediately after the application of steam to the puddling forge, the demand for malleable iron rose in even a more rapid degree than in proportion to the increased supply. Many hammers have, from time to time, been invented, but they have all been liable to go wrong, to get out of repair, to damage from breaking, to an almost incredible extent. We may here state a fact in corroboration: the helve hammers and others of that class, used at every manufactory of malleable iron, have been subject to breakages almost daily since they were first put in action. This liability to injury necessarily caused an immense loss of time and capital to keep up the tear and wear, and attracted the attention of the great engineer, James Watt, so long ago as in the year 1784. He invented a steam-hammer, which, though less liable to go wrong in the same way as the helve and other hammers to which we have alluded, was still liable to serious accidents. Watt's scheme, with certain slight alterations, was brought forward and patented in 1806, by W. Deverell, and speedily got out of repair.

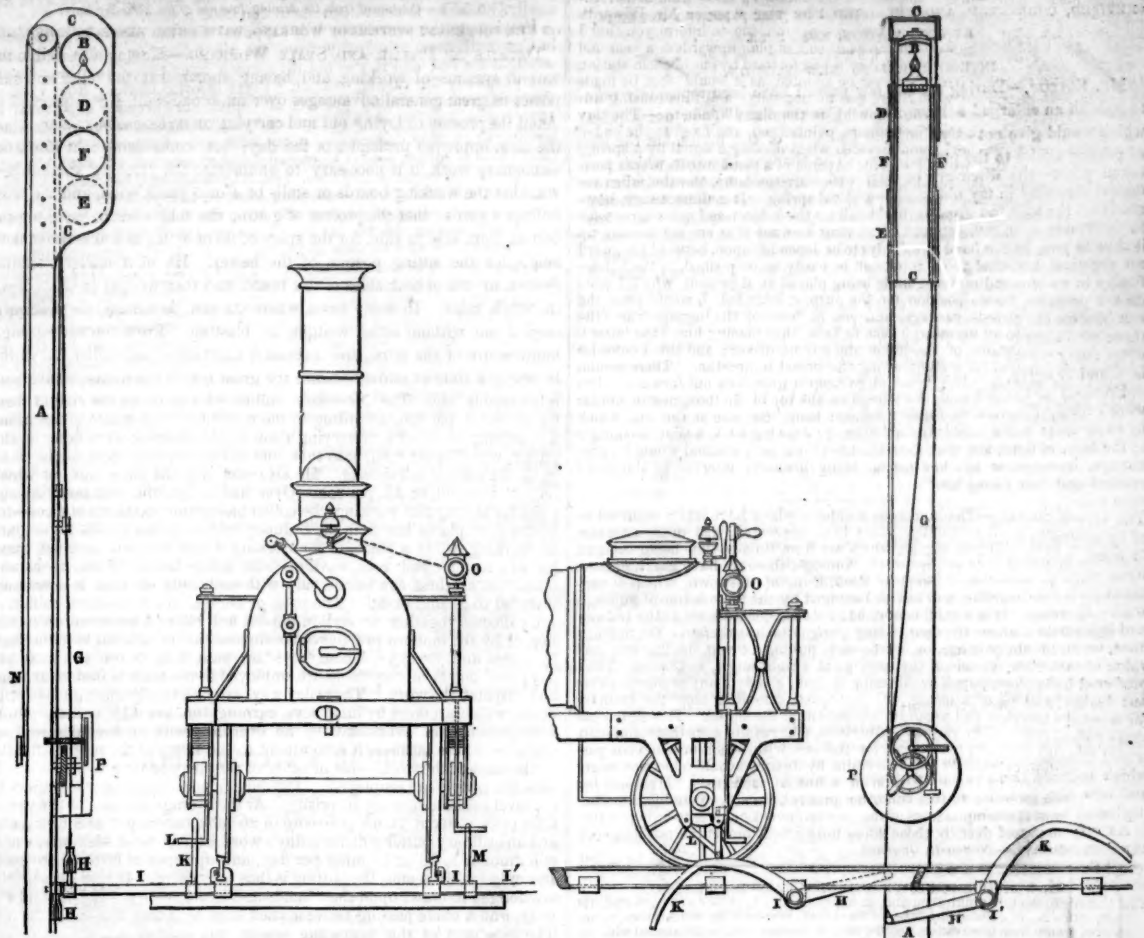
Not long ago Mr. Nasmyth brought out and patented a steam-hammer, which was similar in principle, and not much different in detail, from both of those we have referred to. Mr. Nasmyth's hammer, which has been four or five years before the public, has failed to give that satisfaction which was expected. As a scientific description would be unintelligible without the aid of diagrams, and as it would not, even with the aid of these, be interesting, excepting to a very few of our readers, we will shortly describe the outward appearance of one of Mr. Nasmyth's hammers, and point out what, in our opinion, are its weak points, and which description will, we believe, enable our readers to form an idea of the improvements which Mr. Condie has introduced into his hammer. Mr. Nasmyth's steam-hammer is composed of a heavy framework of cast-iron, not unlike, in shape, to a Jew's harp, with the head half sunk in the foundation, and two limbs between which the tongue vibrates directed upwards. On the top of the two limbs is a stout cross head frame of cast-iron. Upon this head-piece is supported a cylinder, the upper end of which is nearly 30 ft. from the ground. From this cylinder descends a piston rod, to the lower end of which the ram or hammer is attached, and has a 6 ft. stroke. This hammer is guided in its upward and downward motion by feathers on the side, moving in grooves in the side frame-work. It is a well-known law in mechanics, that when a rod or bar of metal receives a strong blow on one end, the shock is communicated with very little loss of force to the opposite end, and so severe is the shock, that if the percussive force be greater than the power of attraction possessed by the bar or rod, it will be broken asunder near to the end opposite to that which received the blow. This law has no exceptions. Now, when, as in the case of the Nasmyth hammer, a block of metal is added to the end of the piston-rod, the liability of the piston-rod to break is increased exactly in proportion to the weight of the hammer added to the force of percussion. Such is one of the risks—namely, the fracture of the piston-rod and piston, to which Mr. Nasmyth's hammers are exposed at every blow. The other defects we could point out, are principally with respect to the action of the piston on its cylinder, and the difficulty of preventing dangerous oscillation—the first causing leakage of steam from the abrasion of the cylinder, produced by the action of the piston on its sides, the second, causing the piston-rod to twist and bend.

We will now as briefly describe Mr. Condie's patent improved hammer. The framework of his hammer, which is about 14 ft. high, is not very dissimilar to that of Mr. Nasmyth's. Instead, however, of a cylinder standing upon the cross frame at the top of the two side bearers, a piston-rod descends from the head frame. This piston-rod is held by a ball and socket joint to the head framework, and the cylinder, to the lower end of which is attached the hammer or ram, moves up and down, supported by the side frames. The steam which gives motion to Mr. Condie's hammer, is fed into the cylinder down through the centre of the piston-rod. We will now show that Mr. Condie's hammer is, at least, not liable to the same risks as that of Mr. Nasmyth's. The ram or hammer not being attached to the piston-rod, and the piston and rod being immovable, except in as far as a slight lateral motion is permitted to it by the ball and socket joint, to allow for any oscillation which may occur from negligence or wear, makes it all but impossible that either the piston or rod can be affected by the shock while giving the blow. Again, the cylinder and hammer (measuring together about 6½ ft., with grooves in each side), sliding on feathers on the side frames through the whole course of their upward and downward motion, almost entirely prevents oscillation; and the mass of the hammer is so well proportioned to the mass of the cylinder, which is, in fact, a portion of the hammer, that the shock produced by percussion can never do any damage to either. We have, since the beginning of March of the present year, when Mr. Condie's first experimental hammer was erected at Mr. Dixon's Govan Iron-Works, frequently seen it at work. We have carefully watched the amount of work done by it, and gathered the opinion of practical men as to its efficiency, and the result has been highly satisfactory. It has a stroke of 2½ ft., with a weight of 41 cwt.

Those who look upon every mechanical invention in a commercial light, and who calculate the value of a machine more by the profits derivable from it than for the skill evinced in its construction, speak of it in the highest terms. Mr. Condie's hammer has been constantly at work, night and day, since March, and, including scrap furnaces, has kept as many as 14 puddling furnaces in full work during the whole of that time, and it seems likely to go on safely as long as the material of which it is composed will endure, without rest or accident. During our last visit to the works, while talking with the manager, we put a few questions regarding the value of the work done, and the cost of the instrument, and received the following very graphic and concise answer:—"The tool will pay its own cost in the first year." From what we have seen of it in Govan Iron-Works, we are certain that it could keep at least half-a-dozen more furnaces in full work.

When we remember that Mr. Condie has thrown away the results of his scientific knowledge without advantage to himself, in more than one instance, we sincerely hope that he may find in his improved hammer a source of emolument equal to what he might have made by the improvements he added to the hot-blast, not to mention any other of his inventions. And while such is our hope, we feel assured that the Condie hammer only requires to be known, to supersede all those which have gone before it.—*Glasgow Herald.*

PATENT RAILWAY SIGNAL AND TIME GUARD.



The frequency of collisions on our railways, by which an enormous amount of property is often sacrificed, and the destruction of human life too frequently the result, while travelling is, at all times, painfully dangerous and uncertain, renders it imperative, that some system should be adopted on every line in the kingdom, by which these catastrophes should not only be less frequent, but entirely avoided, and the system so worked, as to cause it to be almost an impossibility for an accident from a collision to take place. These destructive events almost invariably happen by a fast train running into a slower one, which has preceded it, or into stationary vehicles, for some cause or another remaining on the line, unknown to the next engine-driver, until too late to bring up his train; and he is propelled into the obstruction with fearful violence, engine and carriages destroyed, and, too often, accompanied with the sacrifice of human life and limb. Now, with a self-acting arrangement, by which a signal would be exhibited at intervals (of say every mile), to inform the engine-driver of each train how far in advance the preceding train is, a step is obtained, by which he would, according to circumstances, keep up his full speed, or so regulate it, that he would never come into dangerous proximity with the foremost train; and, as he arrived at every mile signal, he would ascertain whether it was increasing, or decreasing, in rapidity of transit, as accurately as the driver in advance himself knows. Under such a system, it would be hardly possible for collisions to occur; and we are gratified to find that a simple, yet thoroughly perfected, plan of this description has been secured by Messrs. Cunningham and Carter, in their specification for a new mode of propulsion on railways, and which is perfectly applicable to the locomotive, or any other system of railway transit.

In this plan, lamps are placed upon the line at intervals, exhibiting a white light when the road is clear; but, at the instant a train passes, a disc-plate, with a pane of red glass, is elevated, which, by covering the light, changes its colour to red. The disc-plate now slowly descends, and the time of its descent is susceptible of the nicest adjustment; the white light is again restored, which indicates that the road is clear for the following train. The mechanism by which this warning signal is worked is extremely simple—the train itself elevates the disc-plate; and the gravity of the plate and rod depresses it. The descending disc shows, by the proportion of red and white light, the interval of time since the last train passed, according to the time the machinery is regulated to. In case of accident, or delay, the guard returns to the nearest lamp, perpetuates the red signal, and fixes a lever, which will act on the lamp and

whistle of the coming train, and inform the driver that an obstruction is not far distant.

The above diagram is a representation of this time signal:—A is the lamp-post; B, the lamp, or night signal, showing a white light; C, lamp-case; D, disc of red glass, which rises on the passing of a train, showing a red light; E, red disc, to cover day signal; F, painted white; G, rods, connected to disc-plates and time-levers; H, levers, fixed on ends of shafts, I and J; I, shaft, extending across the up line; J, ditto down line; K, curved lever, on shafts, I and J; L, tappet piece, on axle of engine, or tender; M, extra lever, for acting on engine-lamp, and whistle; O, lamp on engine; P, time machinery.

The action is as follows:—On the axle-box of the engine, or tender, is fixed a projecting pin, as shown at L; as the carriages pass, this pin will press down the lever, H, fixed on the end of the connecting shaft, I, with the rod, G—disc-plates, D and E, thus signalling both night and day, and also the lever connected with the time wheels. It will thus be seen, on the next engine passing, the lever, K, will be depressed, raising the lever, H, with rods and disc-plates, and the lever of the time wheels, which, being acted on by the rod and disc-plate, will regulate its descent to any time required.

Let us suppose the time wheels so regulated, that the discs require 10 minutes for their full descent; the night signal being a circular disc of plain light, the covering disc a circular piece of red glass; and the day signal a circular disc of wood painted white, with the covering disc, one painted red; it is evident, in each case, the gradual descent of these outer discs will closely resemble an eclipse, and, from the position of the are of the red circle upon the face of the white one, the engine-driver could tell, to the utmost accuracy, the distance of time the previously-started train precedes him; or the white discs might be even graduated down the centre, and show the time exact—of course when the white signal is clear, he knows there is a clear field before him. This does appear to us to be the happiest idea of conveying warning in case of accidents which we remember to have seen, if not the *ne plus ultra* of railway signals; the whole machinery is simple, and (with the exception of the levers) contained in the lamp-post and its pedestal; could hardly, by possibility, get out of repair, can be erected at a very inconsiderable cost, and we sincerely hope the attention of railway directors will be immediately directed to this highly-important arrangement—a model of which will be shown in working operation, in connection with the two large model railways, which will be next week exhibited at some extensive premises in the City-road.

RAILWAYS IN AMERICA.

By late accounts we learn that the railway system is still progressing in the United States. "There will be, without much doubt, more miles of railroad opened this year than in any previous one since these works were first commenced in this country. Independent of the many new lines about being completed, the extension of the old roads is progressing very rapidly, and sections of country most remote from the Atlantic have been connected with the principle markets of the Union. About 300 miles of railroad will be brought into use this year in the state of New York; about 500 in New England; in New Jersey, 80 miles; Ohio, 50 miles—making in these states nearly 900 miles of road. Besides this, there are at least 100 miles in progress, part of which will be completed in 1849.

"The Saratoga and Whitehall Railroad will be finished in October. The business already done on that portion which is finished exceeds the most sanguine expectations.

"The Hartford and Providence Railroad Company have contracted for 3000 tons of railroad iron, weighing 60 lbs. to the yard. The contract is made at \$50 a ton, and the iron is to be delivered in New York next spring.

"The Auburn and Rochester Railroad Company have but seven miles more of new track to lay, and this will be completed in a few days. By the middle of this month the new track will be completed from Albany to Rochester.

"Trains of cars are now running regularly on the New York and New Haven Railroad, through Fairfield and Bridgeport, and in a few weeks the line will be opened between Bridgeport and New Haven. The whole road will be graded by the 1st of November, and by the 1st of January the track will be laid in running order from New Haven to the connection with the New York, Harlem, and Albany-road, at William's Bridge.

"It will create not a little astonishment in Britain to hear that the Yankees are in trouble about the decrease of wood fuel, consequent on the consumption by the railways. All along the banks of the railways the timber has been cut down, and we now hear of the necessity of planting to keep up the supply. The supply in New England State will certainly be soon exhausted, and no substitute is yet at hand. The cost of railroad fuel in the state of Massachusetts alone will, during this year, amount to nearly a million of dollars. In, and near the city of Connecticut there are, or soon will be, completed six parallel railroads. These are, the Harlem and Hudson River, the Housatonic, the Nantuxat Valley, the Newhaven and Hartford, the Norwich and Worcester, and the Stonington Railways. The State is also intersected by Connecticut River, whose shores have long supplied fuel for steam-boats. The prospect of Connecticut is the complete destruction of her forests, and here the people are planting trees for re-production. In the interior of Pennsylvania, the Reading Railroad, leading from Philadelphia to the coal region, consumed last year a daily average of 290 cords of wood, making a sum total of more than 90,000 cords, at a cost of more than \$370,000 per annum. Assuming the Reading Railroad to be 100 miles in length, the same amount of wood burned on the large western steam-boats would have transported 4,320,000 tons the same distance against the mighty current of the Mississippi. By trial on board these boats, 7 bushels of coal are found equal to one cord of wood in generating steam."

CONTRACTS FOR RAILROAD IRON.—The Hartford and Providence Railroad have contracted for 3000 tons of railroad iron, weighing 60 lbs. to the yard. The contract is made with the firm of Thompson and Forman, of Boston, at

\$50 per ton. The iron is to be delivered at New York next spring, and to be subject to a rigid inspection in this country. The contract, at present prices abroad, will leave a very handsome per centage of profit to the sellers, but at the same time it is, with two exceptions—one of the Utica Company, at \$48 50, the other the Erie Railroad Company, at \$46 45—as favourable to the buyers as any bargain which has been made for foreign railroad iron. The quantity ordered will be sufficient to lay the track as far as William's. By this contract a saving to the amount of \$45,000 is effected on the original estimate of the expense of the road, in which the probable cost of iron was set down at \$65 per ton. The total saving made on the original estimates for grading the bridges over the Connecticut River, and iron for this road, exceeds \$100,000.

THE GREAT WESTERN DOCKS.—On Tuesday last the Lords of the Admiralty inspected the site for the intended Great Western Docks. Mr. Brunel submitted the plans and sections of their work to their lordships. We are informed that there are some disputes existing between the Admiralty and the Dock Company, respecting some of the land required for the works, but all will, no doubt, be settled amicably.—*Plymouth Journal.*

SWANSEA DOCK COMPANY.—A meeting of a large number of shareholders was held at the Castle Inn, on Thursday last, to consider the steps proper to be taken in reference to the docks, under existing circumstances. It was determined that an interview should be sought of the directors. At an adjourned meeting, held on Monday evening, it was announced that the chairman and directors had most readily acceded to the request of the shareholders, and appointed Thursday next for the meeting. A committee of these gentlemen having been appointed to represent the shareholders on the occasion, the meeting was adjourned to Friday, to receive the result of the conference with the directors.—*Local paper.*

TIDAL AND METEOROLOGICAL SELF-REGISTERING CLOCK AT THE BROOMFIELD, GLASGOW.—An instrument of a very ingenious and intricate description, and one which will prove of immense value to science, has just been erected in the passenger waiting-room at the steam-boat quay, Glasgow-bridge. It may be described as a self-acting and self-registering tide, wind, and weather gauge. The instrument consists of eight parts:—1. The clock, which shows hours and minutes.—2. The barometer, indicating at each hour the pressure of the atmosphere.—3. The tide gauge, exhibiting the time of high and low water, also the depth in feet.—4. The spate gauge, showing the height to which spates in the river rise above the tide at high water.—5. The anemometer, indicating the force of the wind, expressed in pounds.—6. The thermometer, showing the temperature of the air.—7. The anemoscope, showing the direction of the wind.—8. The rain gauge, which indicates when the rain commenced, the time of its duration, and the amount of rain fallen, expressed in tenths of an inch. All the changes in tides and weather are indicated by curved or sectional lines, on a large sheet of ruled paper, wrapped round a vertical cylinder, which revolves once in a week. The fidelity with which the pencils trace their reports is most wonderful. There they are at their silent work day and night. Every change of tide, the measurement of its height; the changes in the wind, its force; the state of the atmosphere, with the hours at which all these phenomena take place, are observed and denoted with unerring accuracy. This most elaborate and comprehensive instrument has been erected by the Clyde trustees at a cost of about 250*l.*—*Liverpool Albion.*

The Compendium of British Mining.

ORIGINALLY COMPILED AND PUBLISHED IN 1843.

REVISED, CORRECTED, AND ENLARGED FOR THE "MINING JOURNAL," BY J. Y. WATSON, ESQ., F.G.S.

INTRODUCTION TO NEW EDITION.

MR. EDITOR.—During the last few years I have been repeatedly asked to publish an enlarged edition of the "Compendium" (now out of print), which would give not only the latest statistics of the mines, but the state of mining affairs to the present day. The changes, however, which have taken place—the discovery of new and important mines—the failure of many, described in my old work—and other things, needless to mention, rendered the task too great to undertake, and it has required "an effort" to determine upon revising and correcting it at my leisure, and presenting it thus to you, in the hope it may interest some of your readers, who have no practical knowledge of mining, and who find, I dare say, some difficulty in understanding the weekly reports published in your paper. I do not presume, for a moment, that a republication of the "Compendium" can interest the practical Cornishman; it was never intended to enlighten those who already know too much. It may, however, open a discussion upon many points where, at the present moment, scarcely two agents can be found to agree, and so bring instruction and truth to light.

Previous to the issue of the compendium in 1843, the general public were entirely ignorant of mining affairs; they had been taught (perhaps, by experience in the bubbles called mines) to look upon mining companies, at the best, as lotteries, and, as general things, as robberies. The great change, however, which has taken place in public feeling, and the increased and increasing attention paid to legitimate mining, shows, as I then stated, it only required to be better known to be better supported. The very increase of public attention, however, has been taken advantage of by scheming adventurers, and companies have been formed, mines put to work, and shares "rigged," in a manner that has reflected disgrace upon mining, and created disgust among many who had not only the means, but the disposition, to aid and support the mining interests of Cornwall. In seems a strange anomaly, but it is true, that whilst really good and legitimate mines, paying dividends, with prospects of their continuance, were, in many instances, to be purchased for little more than the value of materials, those parties who have suffered so much by bubbles, preferred believing the interested, and often grossly exaggerated reports of set dealers, and gave premiums on shares, as high as the rate of 10,000%, for untried pieces of ground! and, when, perhaps, two guineas paid to some respectable underground agent, or a little inquiry even in London, would have procured them advice totally at variance with the statements which induced them to part with their money. This rage for premiums and new sets became, at one time, so general, that the good mines were neglected in proportion.

As very many of these bubbles have burst, I do not wish here to make any distinct allusions; but in the course of this work, I hope to be aided by all those who have a wish to uphold legitimate mining, in showing to the public what mines are, and what mines are not, worthy of their notice, and the difference between management and mismanagement, &c.

INTRODUCTION TO THE EDITION OF 1843.

"It is said, that 'a knowledge of our subterranean wealth would be the means of furnishing great opulence to the country than the acquisition of the mines of Mexico and Peru.'"

The subject of British mining ought to be deeply interesting to the capitalist, as some millions are annually employed in this pursuit. A prejudice which has prevailed as to its being extremely hazardous (perhaps arising from the enormous sums that have been wasted), is principally the result of rashness, the absence of proper information, and the want of proper attention to the pecuniary conduct of the concerns, especially in large proprietaries, where the losses have principally fallen. But the want of information is difficult to be supplied, as there is no subject so little understood, in practice and detail, by the generality of persons interested, as mining. The press, which furnishes, so profusely, matter, both elementary and practical, on almost every subject, is so barren on this head, that even a manual of humble pretensions is still a desideratum, and which this compilation is intended to supply.

Previous to the valuable *Essay on Cornish Mines*, by Mr. Abbott, in 1833, there was nothing extant but the old standard work of Pryce, so costly, as well as eagerly sought after, and which, however well describing the mining operations of "olden time," is inapplicable to the present day. It was, perhaps, owing to this circumstance (the want of information) that capital for mining purposes was, 40 or 50 years ago, furnished from only a few mercantile towns and seaports, besides Cornwall itself, while the great metropolis was almost excluded from all participation. There might be also some other reasons, for the Cornishmen of those days got a bad name, and were deemed as "cannies as Yorkshire!" But those times are past, and it may be concluded that Cornishmen and out-adventurers now understand their own interests too well not to harmonise.

But even Mr. Abbott's work, which was privately circulated, important as it was, made no allusion to the practical details, gave no explanation of the mining technicals, and was, therefore, only useful to those who were already well acquainted with the subject. Besides which, since his work was published, many mines have been abandoned, and others, not then known, have come into full operation.

While alluding to the press, however, the services of the *Mining Journal* (the earliest devoted to the subject) must not be forgotten, and which has proved, perhaps, as valuable and useful to the mining interest as the *Lancet* did to the medical profession; acting either as a scarifier when too great a plethora of mining bubbles prevailed, or as a styptic, where dangerous "bleeding" of the pockets of the capitalist was concerned. In giving the following sketch of British mining, it is intended to be confined principally to that of Cornwall, as, from the richness and number of its mines, and the skill employed in working them, the attention of capitalists has been turned to that county, to the comparative neglect of most others.

By those acquainted with legitimate Cornish mines, it will be allowed, that when properly conducted, mining is neither so uncertain, or speculative, as many have been led, either through ignorance or prejudice, to imagine; on the contrary, it frequently offers the most profitable advantages to the capitalist, great or small.

To enter indiscriminately into mining speculations, without regard to locality or choice, in the faint hope that one or two may turn up prizes, and redeem those that fail, is certainly a dangerous adventure; for a judicious selection is as necessary as the skill and judgment of an effective management; but, as all mines, however well selected, cannot be expected to prove profitable, it is, therefore, advisable to invest in more than one undertaking—a division of risk necessarily diminishing the effects of a partial loss, and insuring a greater degree of success on the aggregate of undertakings. Great coolness and patience are also required in entering upon these speculations; for many have, from mere temporary causes of depression, arising from no fault of the mine, become frightened, and sold out at a heavy loss, when, by remaining quiet, they might have eventually realised large profits. There may be depressions also in the market for ore, when it is advisable not to sell the usual quantity per month (though it may lessen the usual dividend) until a reaction takes place; but this should not, as it too often is, be considered as a falling-off in the mine, for, in the well-conducted, the ticketings must not be solely looked to as the criterion of the state of the mine.*

In order to illustrate the foregoing remarks, instances of fortunate and judicious selection, as well as cases in which patience and perseverance, founded on sound indications, leading to the happiest results, will be noticed. The East Pool Mine may be considered as an instance of judicious selection, whether as regards the locality or the surrounding district. This mine, upon an original outlay by the adventurers of only 640*l.*, has returned upwards of 100,000*l.* and is still making large profits.† The Treasavean Mine is another instance of perseverance; for, after having been even once or twice abandoned, it was at last resumed by a few skillful fortunate adventurers, and has made them a clear profit of 800,000*l.* Many others might be mentioned equally prosperous; but as they will come under the head of mining notices, the above remarks will suffice for the purpose here.

There are about 112 copper mines working in Cornwall, employing nearly 60,000 persons; the tin mines employ about 12,000 more. The amount annually expended in labour is estimated at 900,000*l.*; for materials for working the mines, 300,000*l.*; and the mining districts, either

directly or indirectly, give employment to upwards of 100,000 individuals. The returns of Cornish copper mines, for 14 years, ending 1841, were 13,682,810*l.*—the last seven years of that time averaging 1,049,821*l.* annually. The tin mines return about 300,000*l.* a year.

Previous to the year 1700, it is supposed that the copper ore produced in Cornwall, was principally from the tin mines, or mines originally wrought for tin; and it was not till a much later period that mines were set purposely for raising copper. Pryce informs us that, from 1726 to 1735, the average annual produce of copper ore exceeded 6000 tons; in 1770, the quantity of ore had increased to 27,000 tons, which yielded, according to existing documents, about 3200 tons of copper. In 1798, the total value of copper sold in Cornwall for that year was 405,488*l.* 15*s.* 6*d.*; the labour amounted to 253,601*l.* 12*s.* 3*d.*; materials, 146,253*l.* 16*s.* 3*d.*; total cost, 408,240*l.* 7*s.* 4*d.*—showing a loss on that year of 2759*l.* 12*s.* 2*d.*; the average standard of the year was 103*l.* 12*s.* 6*d.*; and the price of manufactured copper, 1*s.* 2*d.* per lb. The increase of the annual returns to the present time may be seen as above. In 1768, the immense riches of the Anglesea mines were discovered. These mines, about 1784, produced 3000 tons of copper annually. In 1780, the singular mass of copper ore at Ecton Hill was discovered; but these mines have ceased to be so productive—whilst those of Cornwall have greatly increased in value.

It may be noticed here, and by those acquainted with mining the remark will be verified, that there is an extreme difficulty in obtaining statistical information from the different mines. Unfortunately for themselves, Cornishmen seem to think they thrive best in mystery; and thus, one of the finest fields for speculation, is often looked upon by capitalists with prejudice and distrust—when, if every transaction were fairly elucidated, and openness and candour practised, they would be met in a kindred spirit, and mining would become far more popular than it is; and who would be benefitted more than themselves? In collecting materials for this book, considerable difficulties in getting accurate accounts of the mines have been met with; but, through the kindness of friends, fuller particulars have been obtained than were ever collected before; and, if any of them should be inaccurate, it is the fault of those who cast a veil over their proceedings, and view with jealousy and distrust any attempt to obtain an insight into their doings.

In compiling this work, the object has not been to enter into scientific theory, or speculation, nor to assist the practical miner, but to give plain facts as they exist, and to endeavour to throw light upon a subject in which so many are interested, but which so few understand, and that in as brief and lucid a manner as possible.

[To be continued in next week's Mining Journal.]

Mining Correspondence.

ENGLISH MINES.

ANTIMONY AND SILVER-LEAD.—Capt. Charles Williams (Sept. 27) reports—Our tributers have done well this last month, and I have set them a fresh pitch on the antimony, at 3*l.* 5*s.* per ton, raising and dressing included, fit for market; this ore will fetch from 8*l.* 15*s.* to 9 guineas per ton in the market. I have sent some of our gossan to be assayed for silver, but have not yet received the amount of its yield. We discovered a lode yesterday, in driving up the lobby, in the lane, and have taken out some very fine malleable copper, but will let you know more in a day or two. We have another large lode just above; and, as soon as they have taken up another step to the first of the above lodes, we shall take it about 10 ft. deep.

ASHBURTON UNITED.—Capt. J. Kernick (Sept. 25) reports—The 14 ft. level, driving south of Hobson's shaft, on the copper branch, is in favourable ground for driving; the branch is spangled with black copper ore, but it is too disseminated for dressing. There is a valuable discovery on the tin lode at the footway shaft, west of Murray's, to the back of the heave. The pitches are the same as when last reported.

BARRISTOWN.—Capt. T. Angove (Sept. 22) reports—The lode in the 10 ft. level end east is from 18 to 20 in. wide, very regular, and producing about 8 cwt. of lead per fm. On the north side of the lode we have a branch, about 2 in. wide, of solid lead, which we consider a very favourable indication. The 16 ft. level end west is in the broken irregular ground which we have driven through in the eastern end, consequently the lode is poor. In the adit end east the lode is producing from 1 to 1½ ton per fm.; the back and bottom behind it are also looking well for ore. The stopes east and west of the winze, in the bottom of the adit, east of Nangle's shaft, are not looking altogether so well as last reported. We shall ship 30 tons in the ensuing week for ticketing.

BEDFORD UNITED.—Capt. James Phillips (Sept. 27) reports—At Wheal Marquis, the lode in the 80 ft. level east is 3½ ft. wide, producing about 3 tons of ore per fm.; the lode in Tiller's winze, in this level, is 18 in. wide, producing a little ore—a handy lode. We continue to drive by the side of the lode in the 70 ft. level east. The pitches are yielding good returns.

CWM ERFIN.—Capt. S. Nicholls (Sept. 23) reports—We have cut the lode in the 20 ft. level 2 fms. south of the engine-shaft; it is 15 in. wide, with some ore in it; the ground is rather unsettled about the engine-shaft, but as we are now about to drive west under the stopes above, I hope to find the lode looking much better in this level. The stope, west of the engine-shaft, in the bottom of the 10 ft. level, is similar to the last report, producing 10 cwt. of ore per fm.; we have not met with anything in the 10 ft. cross-cut as yet. We have not met with the lode on the western hill on the surface. The tributers' pitches are looking just as they have done for the last two or three weeks.

DEAN PRIOR AND BUCKFASTLEIGH.—Capt. H. Choake (Sept. 27) reports—In cross-cutting in the 40 ft. level, in the past week, we have met several branches of spar, with munda and spots of yellow copper ore, which hold out the most favourable expectations as to cutting the lode in this level. Although the ground is sparry for driving, we have driven, in the past week, about 5 feet.

DEVON AND COURTENAY CONSOLS.—Capt. N. Secombe reports—In the end, driving west, in the 40 ft. level, on the gossan lode, the lode is 2 ft. wide, composed of spar and munda, with killas and spots of ore. In our 50 ft. level the lode in the end, driving west, is 2½ ft. wide, composed of munda, peach, and spar; in the end, driving east, in the same level, on the south lode, it is 2½ ft. wide, composed of spar, munda, and spots of ore. This end I have suspended for the present; and have put the men to open on another lode, west of the cross-course, 3 ft. wide, composed of spar and good stones of ore. I think my next report on this lode will contain information of an improvement.

EAST CROWDALE.—Captain S. Paul (Sept. 23) reports—In the past week we have cut a lode in Diamond's engine-shaft, at Kix Hill; it is of a most kindly description, and, from its character and composition, I believe it to be Thomas's lode. The ground in the shaft is not quite so good as last reported upon; I shall be able to give you a better description of this lode in my next report. The adit level, driving west on Thomas's lode, is upwards of 13 ft. wide, composed of peach, elvan, prian, spar, munda, gozzan, and tin, and worth upwards of 40*l.* per fm.; the lode in the stopes, in the back of this level, is increasing in size, is upwards of 8 ft. wide, composed of peach, prian, spar, munda, killas, and tin, and worth about 20*l.* per fm. The ground in Thomas's shaft continues favourable for sinking; the part of the lode we are carrying is composed of gossan, flookan, and prian; we intend to cut into the south wall of the lode in the ensuing week, when I hope to report a discovery of tin ground. The pitman has been engaged in stripping down a piece of lode in the adit level, on Thomas's lode, which has produced some good work for tin. Our engine, pitwork, and stamps, are all in good working condition.

EXMOR WHEEL ELIZA.—Capt. W. H. Whitford and Thomas Dunn (Sept. 28) report—Since our last, we have commenced our sinking operations, which at first were impeded by some inconveniences over which we had no control; but it affords us much satisfaction to be in a position to state that, of late, things are conspiring to promote our object. Providing the necessary materials are forwarded to the mine in due time, we hope, by the end of another week, to put in the bearers and cistern, and drop the large lift; after which, there can be no doubt of our getting on comfortably, and, we hope, speedily in sinking.

GREAT MICHELL CONSOLS.—Capt. T. Richards (Sept. 27) reports—The lode in the 45 fathom level, west of the sump-winze, is, in its general character, more promising than for some time past, containing munda, spar, and fluor, with rich stones of ore in places. In the 35 ft. level west there is no material alteration; the lode contains munda, capel, spar, and prian, with a small proportion of black and yellow ore.

HOLMBUSH.—Capt. W. Lean (Sept. 26) reports—The ground in the diagonal shaft is still favourable for sinking. The lode in the 132 ft. level west is 20 in. wide, composed of munda, capel, and spots of copper ore—ground favourable for exploring. The lode in the 120 ft. level south is 4 ft. wide, composed of quartz, prian, and lead, worth 4*l.* per fm.; the lode in the stopes, in the back of this level, is worth 3*l.* per fm. The lode in the 110 ft. level south is 4½ ft. wide, composed of quartz, white iron, and lead—saving work. The lode in the 100 ft. level south is 2½ ft. wide, composed of spar, prian, and stones of lead—saving work; in driving east in this level, on the Flap-jack lode, we thought we had reached the great cross-course, but now find it to be only a limb of it, the end being again in soft killas; but, no doubt, the main body of the cross-course will be met with in 6 ft. driving.

* Since this was written, six years ago, miners have become much more communicative; indeed, I would add here, that nothing can exceed the kindness and attention I have met with among mining agents.

KIRKCUDBRIGHTSHIRE.—The agent (Sept. 23) reports—The lode in the 50 end, west of Stewart's, has much reduced in size this week, being now about 18 in. wide, and a small rib of lead coming in on the south side, yielding about 3 cwt. to the fm. The 50 end east, on the north lode, still looks well—worth about ½ ton to the fm. Keith's shaft has a lode 4 ft. wide, with fine stones of lead in it. The lode in the 40, west of Keith's, is still very promising, but has not as yet improved for lead, although it is seldom without a small branch on one side or the other. There is still a good branch of lead in the 30, east of Stewart's, yielding ½ ton per fm. We hope to send you a cargo of lead again by the end of the month.

LEWIS.—Capt. S. S. Noell (Sept. 23) reports—The lode in the 70 east is 1 ft. wide, unproductive; the lode in the 70 west, on south branch, is 6 in. wide, worth 7*l.* 10*s.* per fm.; the ground in the 70 south is much the same as when last reported. The lode in the 60 east is 3 ft. wide, yielding some tin, and very promising; the lode in the 60 east, on south branch, is 1 ft. wide, worth 8*l.* per fm.; the lode in the 60 west, on south branch, is 18 in. wide, worth 7*l.* 4*s.* per fm.; the lode in the winze, sinking under this level, is producing some good work for tin. The lode in the 50 east, on south branch, is 1 ft. wide, worth 3*l.* 10*s.* per fm. The lode in the 40 east, on south branch, is 4 in. wide, worth 2*l.* per fm. The south lode, in the 20 east, is producing some good quality tinstuff. The south lode, in the 10 ft. level east, is much disordered by large floors of spar.

LOSTWITHIEL.—Capt. J. Offord (Sept. 23) reports—We have opened the lode 16 ft. deep, just where our end is coming in; I give you a sketch of it here-with, and can only say, judge where it is. The lode is nearly 3 ft. big, and a very promising one; it may be heaved down by the capel floor already named.

SOUTH WHEEL MARIA.—Captain George Francis (Sept. 28) reports—Although we have not yet reached the lode in the south cross-cut, it is now evident that we are very near to it; the water is fast increasing, as we approach towards it; I am glad to find its underlay much less than we at first calculated on. I have great confidence in being able to report that we have intersected the lode in the course of another week, when I hope it will be in my power to write most favourably as to our future prospects.

SOUTH WHEEL TRELAWNY.—Capt. W. Lean (Sept. 26) reports—We have cut the lode in the 30 ft. level cross-cut, west from the shaft, 18 fms. 1 ft. 6 in.—thereby showing the underlay to be only 6 ft. 6 in. from the adit to the 30 ft. level, which I consider to be favourable; the lode is 2 ft. wide, composed of soft white spar, munda, and spots of lead, with crystal of copper, in the midst of a beautiful killas strata as ever I saw, and, on the whole, I consider it to be a very kindly lode; but it is evident we must go deeper, when I have no doubt we shall meet with a productive lode, judging from the nature of the lode as seen here, and in the mine adjoining. I would also observe, there is a great deal of water coming from the lode, and boiling up from the bottom of the level, as well as issuing from the end of the cross-cut, which circumstance induces us to extend the cross-cut 6 ft. further, to make certain if there be any more lode before us or not, as the ground is very favourable; this will be accomplished against Saturday next, as well as some distance being opened on the lode.—Capt. W. Jenkin (Sept. 28) reports—Since I wrote you last, a great alteration has taken place. We have intersected a great many branches, some of them produce spots of lead. I believe, last night, we reached the main part of the lode—a lode about 2 ft. wide, composed of stones occasionally thick with fine lead, a great deal of bright soft spar, and crystals of copper ore, in the midst of a beautiful killas strata; the underlay is very little. I hope I shall tell you more in the course of a day or two.

STRAY PARK.—Captains R. Eustice and E. Ralph (25th Sept.) reports—In the 70 end, driving west, the lode is 18 in. wide, yielding 1½ ton of ore per fathom. In the 80 end, driving west, in Wheal Francis, the lode is 1 ft. wide, yielding 1 ton of ore per fm. In the 90 end, driving west, at Wheal Francis, the lode is small, and unproductive. In the winze sinking below the 90 ft. level, the lode is 2½ ft. wide, yielding 4 tons of ore per fm. In the 100 end, driving west, the lode is 2 ft. wide, yielding 6 tons of ore per fm. In the 110 end, driving west, the lode is small and unproductive. In the 120 end, driving west, the lode is 2 ft. wide, yielding 2 tons of ore per fathom. In the 150 end, driving west, the lode is 2 ft. wide, yielding 1½ ton of ore per fm. In the 180 end driving east, the lode is 3 ft. wide, yielding 3 tons of ore per fathom; in the 180 end, driving west, the lode is 3 ft. wide, ore throughout, but not rich. At Wheal Francis we are clearing up the old workings above the 56 ft. level, which we shall finish in the course of another week; and, at this level, we are driving a cross-cut north, in which the ground is very favourable—price, 3*l.* per fm. We sampled, on Wednesday last, 517 tons of ore, which will make an average produce of 7½, and, with a fair standard, would give a good profit. The tribute ground continues to look very well, and the mine, on the whole, exhibits no falling off.

TAMAR SILVER-LEAD.—Captain J. Sprague (Sept. 25) reports—In the engine-shaft the lode is 3 ft. wide, intersected with ore—good stamp work. In the 175 ft. level end, south of the shaft, the lode is 2 ft. wide, composed of spar, capel, and ore—work of a moderate quality. In the 160 end the lode is 1 ft. wide, unproductive. In the 145 end the lode is 18 in. wide, 6 in. of which is rich work. In the 135 end the lode is 3½ ft. wide, yielding good work for silver-lead ore. At North Tamar, the engine-shaft is sunk 7 fms. below the 70 ft. level. In the 70 ft. level, driving north, the lode is 5 ft. wide, ore throughout, and occasionally producing good stones of ore.

TINCROFT.—Capt. Peter Floyd (Sept. 25) reports—On Highburrow lode, the 142 ft. level east is for the present suspended; the men are put to rise in the back of this level against Martin's east shaft, which is now about 14 fms. below the 120 ft. level; the lode in the rise is worth 35*l.* per fm. for tin. The stopes in the back of the 120 ft. level are worth 15*l.* per fathom for tin. On Chapple's lode, in the 100 ft. level west, the lode is 2 feet wide, with spots of copper ore. In the 90 ft. level west the lode is in a disordered state, being worth about 9*l.* per fm. for copper. In the 80 ft. level west the lode is worth 5*l.* per fm. for copper. On Dobree's lode, in the 58 ft. level east, the lode is worth 32*l.* per fm. for copper. At Blight's shaft the men are engaged clearing up the old workings in the bottom of the 70 ft. level, from which we intend sinking a winze, for the purpose of ventilating the level below. On Wheal Druid lode, in the 83 ft. level east, we have communicated with the old workings, and have let down the water to the 83 ft. level; the men are now employed clearing up the old engine-shaft below this level. At North Tincroft, the 100 ft. level, east of engine-shaft, is worth 7*l.* per fm. for copper; in the 100 ft. level west the lode is 2 ft. wide, with stones of copper ore. The 90 ft. level east is worth 10*l.* per fm. for copper; the 90 ft. level west has much improved, since last reported; it is now worth 3*l.* per fm. A winze is sinking below the 80 ft. level west, to communicate with the 90 ft. level; we expect to hole by the end of the month; the 80 ft. level, east of Willoughby's shaft, is worth 10*l.* per fm. for tin. At Palmer's, on East Pool lode, the 80 ft. level west is worth 5*l.* per fm. for copper. In the 70 ft. level west the lode is disordered by small cross-courses.

TRELEIGH CONSOLS.—Capt. W. Symons (Sept. 23) reports—At Garden's shaft, below the 100 ft. level, the lode is 2½ ft. wide, producing stones of ore, jack, &c. In the 90 end, the cross-cut south is holed to the tributer's bottoms. The rise, above the 70 west, will be communicated to the winze now in sinking, below the 60, next week. In the winze, below the 60 west, the lode is 2½ ft. wide, but little ore, in the 50, west of ditto, the lode is 2 ft. wide, with rather a promising appearance—little ore. Wheal Parent engine-shaft, below the adit, is 12 fms. sinking in the country; in the adit cross-cut, north of ditto, to cut Wheal Orphan, or north lode; east, on the middle lode, the lode is 20 in. wide, with stones of ore, not to value.

TREANANCE.—Mr. Richard Dalton (Sept. 27) reports—The 12 ft. level south-west is looking as usual, the grey ore continues upon the increase; there has been a good deal of the malleable ore taken from it this week. The 20 ft. (Dalton's) winze is not looking so well; it has not been so bad since we commenced driving from the bottom of it, particularly in the latter part of last week; having surveyed it again yesterday, I am glad to see an improvement—pieces of malleable copper and grey ore coming in sight. When the pitches in the 20 ft. level are driven a few yards further, I intend to dial them, to ascertain their connection with the 12 ft. level above.

WEST WHEEL JEWEL.—Capt. R. Johns (Sept. 25) reports—In the 70 ft. level west, on Wheal Jewel lode, the lode is unproductive. In the 57 ft. level, west of Williams's cross-course, on the same lode, the lode is 2 ft. wide, and worth 7*l.* per fm.; in the 57 ft. level, east of ditto, on the same lode, the lode is 1 ft. wide, and producing stones of ore; in the rise in the back of the 57 ft. level, west of ditto, on the same lode, the lode is 2½ ft. wide, and worth 4*l.* per fm. No lode taken down in the 47 ft. level, west of ditto, in the past week. In the deep adit, west of Hodges's cross-course, on the same lode, the lode is 1 ft. wide—6 in. saving work. In the 30 ft. level, west of Quarry shaft, on Tolcarne tin lode, the lode is 18 in. wide—unproductive. In the deep adit, west of Quarry shaft, on the same lode, the lode is 18 in. wide, producing a little tin; the ground in this level is looking more promising for tin than it has done for some weeks past. The stopes in the back of the 12 ft. level, east of Pryor's winze, on Tolcarne tin lode, now working on tribute, is worth 23*l.* per fathom. The stopes, west of this winze, in the back of this level, working on tribute, worth 25*l.* per fm. The stopes in the bottom of the 12 ft. level, west of Pryor's winze, now working on tribute, is worth 25*l.* per fm.

WHEEL TRELAWNY.—Captain John Bryant (Sept. 26) reports—The 72 ft. level cross-cut is driven towards the lode from Phillips's shaft 3 fms., where the ground is still favourable. The lode in the 62 end north is 5 ft. wide, composed of can, spar, and lead, producing one ton of ore per fm.; the south end, in this level, is suspended for the present, and the men put to rise about 4 fms. behind the end, against the winze, sinking under to hole in a fort—the ground is favourable; and, should it continue, I expect to hole in a fortnight; the rise produces 8 cwt. of lead per fm. The 52 ft. level south, being driven to the extent of our sett, is now driving by Mary Ann's adventurers; this level north is holed to the 52 ft. level Trelawny's shaft; we have a piece of ground to stope in the bottom of the level, which I expect will take about

* This is particularly applicable to the present day.

† It must be remembered, this was written in the latter part of 1843. The mine afterwards became poor, and, through mismanagement in its financial affairs, calls have been made upon the proprietors. The mine, however, of late has greatly improved in appearance, and is meeting its costs.

three weeks to complete, when the water from Phillips's engine will be taken to Telavny's, in this level, instead of the 42; the lode in the winze, under this level, is worth 25 cwt. of ore per fm.; the ground in Telavny's shaft is still hard; the lode in the 52, north of this shaft, is 4 ft. wide, and worth half a ton per fm. The lode in the 42 and north is worth two-thirds of a ton of lead per fm.; the winze, in the bottom of this level, is very similar to my last report; the stopes throughout the mine are yielding a fair quantity of ore. At the north mine, the lode in the 30 end, north of Smith's, is 2 ft. wide, presenting a very promising appearance, composed of gossan, can, and spar, with lead disseminated throughout.

WHEAL VINCENT.—Capt. J. Spargo (Sept. 27) reports—We have cut a most splendid-looking lode; it is more than 2 ft. wide, underlying about 3 ft. in a fm., running about 10° north of west; it is composed of mica, blue peach, wolfram, and fluor-spar, with most excellent stones of tin; in fact, it is real good work. We have also set a pitch on tribute in the bottom of the shallow adit on the north lode. The ground in the south cross-cut is getting more of a blue nature; we cut a branch, a few days since, springing from the lode before us, carrying good work for tin.

WHIDDEN.—Captain J. Kernick (Sept. 25) reports—Caution shaft is now sinking in fair kiltas, but the water is getting troublesome. The lode in the shallow adit east is 3 ft. wide; we are saving all the lode, but it is generally coarse for tin. The five men pitch, in the back of the deep adit, is improving; the men are getting fair wages.

FOREIGN MINES.

ANGLO-MEXICAN MINES.—Guanajuato, Aug. 4.—My present letter is short, because I have nothing pleasant to communicate, not having been able, with all my economy, to make a profit on the month.—*Asuncion*:

Week ending—	Memoria.	Sale.	Profit.	Loss.
July 1	276 2 0	845 8 0	5146 2 2	155 2 0
" 8	582 4 0	848 4 0	—	—
" 15	334 4 4	828 5 0	79 6 0	—
" 22	713 6 2	1010 7 0	—	208 2 9
" 29	499 2 0	922 2 0	—	38 1 0
			\$226 0 0	\$404 5 9
				226 0 0

Total loss in the five weeks.....\$178 5 9

In all the month we sold 515 cargas, at the average price of \$8 64 per carga. The lode said to be cut, I found to be nothing but a good pinta in the vein; so when this month ends, I will see about stopping the destajo, and only go on with our original intentions.

BOLANOS MINES.—Received 25th September, per *Teviot*.
EL BOTE MINER. Aug. 3.—I had last the honour of addressing you on the 2d July, since which period I beg to inform you that the ground in San Genaro shaft has again improved, the green stone having disappeared. We are now sinking in black slate, 8½ varas having been sunk during the month, and the water does not increase. On the 12th July, we recommenced opening Taylor's cross-cut, 280 varas from the surface, which is also in black slate, and 2½ varas were driven up to the end of the month. On the 20th we reached the foot wall of San Eligio vein, in Constanza cross-cut, and are now driving towards the vein of No-pensada, which is the next to cut. We recommenced driving the Compania cross-cut on the 6th July, and have continued it ever since, without hindrance or stoppage of any sort; and on the 9th July we struck the south wall of the vein, and after driving 3½ varas through the vein, in which we crossed a "centa," of about half-a-vara wide, of very rich ore, containing a good deal of native silver, we again struck into black slate, through which we are now driving, and which I believe is the division between Providencia vein and the main lode. In Poso de Guia we have done but very little towards sinking during the month, the time being taken up in cutting down the high ground between the Poso and Plan No. 1 west; the vein continues much disordered and poor. The stopes to the east of the Pozo de Guia are in good ground, and the little water we have in the Poso is daily diminishing, and I expect a few varas more driving in the cross-cut de la Compania will leave these workings entirely dry. In the eastern planes, in the bottom of Guadalupe, the vein continues in good ore, and it is from these workings we are raising the principal part of our carga. The rise in the back of the level has become a good deal disordered, and the ore is less abundant. In the Valenciana mine the ampara is being kept up by driving the new adit by labourers, and in San Jorge by sinking the footway shaft, which is also carried on by labourers.

Extract from a Letter dated August 4.

I beg herewith to enclose the monthly accounts and statements of July, which I hope will be found correct. In the whole of last month I have had the greatest difficulty in keeping the labourers at their work, although I had a greater number than in the previous month; about the middle of each week these began to fall off, and went to other mines, where partido is given, which, since my last, have increased in number, so that the actual days' work were less in July than in June. I have, however, from this week made a new arrangement with the barretteras, and, from what I can see, the new system works well; at all events, up to this day (Friday) nearly all those who began on Monday are at their work, and I expect an augmentation of carga. On the 6th July, I succeeded in lowering entirely the water in the Compania cross-cut, and since then the driving of this point has been continued. A few days after the whole end was in "quaternaria," through which we have cut 3½ varas, where we have met with black slate, mixed with slight veins of quartz. There is no doubt that we are now through the Providencia branch; and I am happy to inform you, that in it we have cut about a half vara of most beautiful ores, full of native silver. The rest of the lode does not contain much silver, the assays not passing two marcos per monton. As soon as the end is further advanced, I will put in workmen, and hope soon to advise you that we are also augmenting our carga from this point. I hope before the end of this month to reach the rest of the lode. The water is easily kept down with the four winzes; and I have no doubt, when we are once through the lode, that three will keep it down. Our surface works are advancing. I have not yet been able to move any of the stone from the quarry, as the cattle are not yet in a fit state. The people who have contracted to freight it, assure me, without fail, by the end of this month they will begin working.

Extract from a Letter dated August 2, received September 25.

CELESTINA MINER.—In this mine about the same number of buscones have worked as in the previous month, but the weekly extraction has somewhat declined. The new labor continues in ore in the bottoms, rise, and to the south, but northward the vein is nearly barren, and in every part has become rather narrower than heretofore; about half the men work in this point, the remainder are distributed along the various stopes of the Providencia, and one pair in the bottom, near the north end; this last point has not improved, it still yields a small quantity of good ore, but has become bunched and less constant.

LORETO.—In this mine the end west of San Juan has not improved, and I intend to stop it after this week. I shall drive a very short cross-cut, to examine that portion of vein which has separated from the string we have followed; and, if nothing more promising should be discovered, I shall probably abandon the enterprise, and deliver the mine to its owners. I shall then be enabled to dispense altogether with the establishment at San Clemente, where we have our counting-house, stores, &c., and the general expenses may be reduced. The stores which cannot be realized may be transferred to Celestina, Bote, or La Granja; and, with this reduction, I think that Celestina may be still made to cover cost for a short time, and assist in supplying us with a little ore for La Granja. La Granja hacienda has not a sufficient supply of ore for the present month; and if we do not shortly obtain a supply from the Bote, I shall again have to reduce the establishment, for there is no probability of obtaining maquilas from other quarters. Quicksilver has fallen in price considerably, and I have purchased 30 bottles, at \$140 per quintal. I have again been disappointed of obtaining bills on England, but it is intended that a conducta shall leave at the end of the present month for Tampico, and I will not fail to remit by that opportunity.

REAL DEL MONTE MINES.—*Extract from a Letter dated Mineral del Monte, August 11.*—I much regret to state, that during the past month no improvement has taken place in any of our mines, likely to assist us in our present difficulties; indeed, as all works of discovery, excepting those relating to San Pablo, on the Biscaina, have been entirely suspended, this could hardly be hoped for. Our extraction, though of poor ore, has amounted to 1200 cargas per week; and, by the accompanying note of costs and returns, you will observe that our weekly loss is still \$1740, below which I find it quite impossible to reduce it, as long as we continue the deep drainage consequent on the trial at San Pablo; and how long I ought to persevere in this, I assure you, a most anxious question; as the last hope of the company, I am, indeed, loath to give it up, and yet the continued delay in obtaining a result is very embarrassing. But to go into more detail. After sinking the San Pablo 7 varas we found, as expected, the lost Biscaina vein, coming in from the north, with its regular underlay, and some small eyes of poor ore. By the time we had reached 9 varas, the vein was half across the winze, and at this moment a saving of time being so urgent, I determined at once to cross-cut to the flooken, and along it, as being softer, until under that point in Santa Teresa level where we had left the best appearances of ore under foot, when another cross-cut back to the Biscaina, will both bring down the water from Santa Teresa, and enable us to judge of our prospects of obtaining good ore from this point; this lower cross-cut was already, by the 4th inst., advanced 10 varas, and I had hoped by next week to commence the important cross-cut, when a breakage of the Dolores diagonal rods, and a subsequent derangement of a balance-bob, lost us nearly two days, during which the water rose above the back of the Santiago level, causing nearly as much trouble, and nearly a week's delay, to again fork it. We yesterday resumed driving on the flooken, and three weeks more, unless again hindered by any accident, will, I hope, suffice to decide the fate of this trial; in the meantime, as all the water appeared to come from the very end of the Santa Teresa level, we have just concluded a dam, and—ordered

it up, so as to admit of sinking under the level, for, as during the whole course of driving it, we have constantly been throwing stones of rich ore from the sole, I am most anxious to examine what we have there. I mentioned in my last that I was going to resume sinking the Dolores vertical shaft, in order to case the Acosta engines, but this I found unnecessary, as merely the preparatory measure of connecting the lower lift, and draining to the sump, had the desired effect; and now the greater part of even this water appears to have come down into the Santa Teresa level, which also seems to drain the Terreros workings, where during the last month the water has sunk 3½ varas, so that at this moment we have the whole force of water at the very worst point, and where our complication of diagonal and horizontal rods, render it very difficult to master. At Acosta and Sacramento there is nothing new, but I am sorry to say, that our best workings of La Luz are now down to a level with the back of the San Enrique, our lowest cross-cut, and, consequently, we must soon expect to meet with water. At Santa Ynez, the ore being both poor and costly of extraction, this mine affords us very little help. At Moran, you will observe, by Capt. Skiffill's report, that the lower workings are far from promising. As the rainy season is much against building, and our object is to save present outlay, I have considered it better to suspend at present the erection of the new engine on the mine. As soon as the Desazano level is communicated between the two—say, in three months—we can then lift the water by a direct motion from the engine to this depth in Santa Barbara shaft; and, by thus leaving for the wire-rope communication only the small sinking-lift in engine-shaft, so ease our present little engine, as to enable it to carry the mine some way further down. In the hacienda there is nothing particularly new, for I have not the means of making improvements. Regia is kept fully supplied with poor ores, that will yield about 5 mcs. per monton, and to Sanchez I am sending the better class—say, of 8 mcs. As yet the rains have not been so heavy as to impede the carriage of fuel, the stock of which has been somewhat augmented during the last month, and having also cut down as a reserve some quantity at Mesquial, from which our requa can, on an emergency, make two trips in the day, I am no longer anxious on this score.

UNITED MEXICAN MINES.—Guanajuato, August 7.—*Mine of Rayas.*—The ends most advanced to the south-east, from which some of the best ore was extracted, I mentioned in my last had fallen off; they have now ceased to produce ore, and are only continued on speculation. The other workings remain as before—some of them looking rather better than they did a week ago. Rayas has been occupied by the troops of both parties alternately; they did as little injury as they could, and behaved well. I enclose Mr. Parkman's report to the 1st inst. The annexed statement indicates the effect of civil war:—

	Picked Ores.	Half Sales with buscones.	Outlay.
July 1	Cgs. 742	\$ 548 5 4	\$5,932 0 1
" 8	550	—	4,619 6 6
" 15	210	—	3,943 4 7
" 22	380	901 3 4	5,103 7 0
" 29	970	1,197 0 0	6,367 6 6
	Cgs. 2452	\$2,647 3 0	\$26,967 1 4

P.S.—In September, I expect a conducta will leave for Tampico, by which I hope to remit you something considerable. Mr. Parkman was down the Mine of Rayas on Saturday, August 6th. Since writing his report of the 1st, he says appearances have improved much in the past week, and now look well again. Santa Cecilia is promising ore at length.

Quicksilver.—I have purchased in Mexico 150 bottles, as none of your shipments have reached Guanajuato.

W. HEATH.

Report on the State of the Workings in the Mine of Rayas.—Aug. 1.

La Purisima.—These workings, and other portions of the mine, in which buscones are employed, continue poor, and have offered no change during the month worthy of remark.

Santa Cecilia. continued as a level to the south-east, on a portion of the vein cut through, has advanced 6½ varas; and, although no ore has been as yet found worth mentioning, still the prospect is more encouraging than it was in the cross-cut; the vein is large, not hard, and similar to that of Santo Toribio.

San Antonio.—A speculative trial, near the San Miguel shaft, has been driven 3-31 varas, and is producing a small quantity of ordinary ore.

San Luis cross-cut. from Santo Toribio, to test the lower divisions of the vein, has advanced 2-31 varas. This work, which has been in progress some time with barmen, is now about 28 varas in length, and in a hard vein, which is large, and contains some ore.

Santo Toribio.—These workings have employed 60 barmen, of which number eight have been employed in speculative work; in general, it may be remarked, that the workings going upwards—the Jesus rise and La Merced—the ore continues as heretofore. In the levels to the south-east the indications are, that we have arrived at the limit of the clavo in that direction. The end of Santo Toribio, not so far advanced as that of San Miguel, is already poor. The deeper workings—such as the pit of Santo Toribio, the end of San Felipe to the south-east, and the end of San Vicente, to the north-west, have improved in quantity and quality of ore, particularly during the past week. It is worthy of remark, that in this month, for more than two weeks, the revolution was seriously obstructing the working of the mine. P. S. PARKMAN.

REAL DEL MONTE MINING COMPANY.

A special general meeting of shareholders was held at the offices, Duker-street, Adelphi, on Monday last, the 25th inst.

Sir ROBERT PRICE, Bart., in the chair.

Mr. PHILLIPS (the secretary) having read the notice convening the meeting, the CHAIRMAN observed, that the business of the day was confined to a very narrow compass. The directors, after the most deliberate and anxious consideration of the present position of the company, and its prospects, had, with much pain, come to the conclusion, that there was no other course left for them but to dissolve, and wind up their affairs. It was absolutely necessary, for the safety of all, that this step should be immediately taken; and he would not, on this emergent occasion, ask any proprietor to move the resolution, but would himself put it—"That this company, under the title of the Real del Monte Mining Company, be dissolved."

Mr. BURNARD rose, and inquired whether, previous to passing a resolution of such vital importance to the interests of all, it was not the intention of the directors to give them some information of the nature of the last dispatches?

The CHAIRMAN said, that owing to some accident to the machinery, the packet was two days later—they had, consequently, only received the dispatches three-quarters of an hour before the assembling of the meeting; and, although they had not had time to very closely examine their contents, they had seen enough to convince them they must hold to the resolution which they had previously come to—that it was imperatively necessary to wind up. The reading, or extracting, any part of the dispatches, for the information of the shareholders, had always been left to the discretion of the directors, as there were often observations and recommendations, which would be highly injurious to the company's interests to go forth to the public. This observation would apply most strongly on the present occasion, when they were attempting to dispose of their property; and he, who could have but one interest with theirs, should set his face against reading the dispatches.

Mr. BURNARD said, it was the undoubted right of the shareholders to hear what their agents in Mexico transmitted to the directors. If they were in so bad a position as to be obliged to dissolve, what did it matter about the public knowing it? He should move as an amendment, "that the whole of the dispatches be read."

A PROPRIETOR having seconded it, Mr. HORACE TWISS said, he should much regret any difference of feeling among the directors; but he considered the shareholders were, most undoubtedly, entitled to have the dispatches laid before them, if they so wished it; but he would caution them, that there were portions on important matters now in progress which would be highly injurious to send forth to the public. It was also rumored, that there were certain capitalists in the city, who had their eyes on this property, with the intention of forming a new company; their interests were the reverse of the shareholders, and it would materially affect their power of negotiating, if their information was published. He thought it best to adjourn for a few days, to give the directors time to make abstracts, which could be inspected by the shareholders, and read at the adjourned meeting.—Mr. FIELD agreed with the last speaker, as to the shareholders' right to read the dispatches, and also as to the policy of withholding certain portions, on many occasions; he, however, opposed the adjournment, which would be but a waste of time, as the company must be dissolved; it was imperative.

The CHAIRMAN said, if this amendment was an attempt to get rid of the resolution, and was successful, they would get into a desperate mess, and bitterly repent it when too late. The seconder of the amendment not being a registered proprietor, it, of course, fell to the ground; and it was consented by the directors, that the letter from Mr. Buchanan to the manager, which always contains a full summary of the information, and its gist, should be read. It stated, that no improvement had taken place likely to assist them; their works of discovery had been suspended. The quantity of ore amounted to about 1200 cargas weekly; but all they could do, they had not been able to reduce their loss below \$1740 per week. This caused the writer the most painful anxiety, as they did not like to give up entirely while there was the slightest hope. Explorations still continued on the Biscaina vein, to reach a spot they were anxious to see,

where they had been delayed a week by a breakage and the water, but another week they hoped would decide it. There was nothing new in the hacienda, as they had no means of making improvements. With respect to their financial affairs they were much harassed; there were \$48,000 due for advances, and as much for agency; this would only leave \$16,000, and he was obliged to take up \$15,000 on security of the next month's produce. The available stores which could be sold might be estimated at \$138,000. What to do for \$28,000, for the next month's cost, he did not know; their credit in Mexico was too low to borrow it. In fact, there was nothing in the letter to hold out the least encouragement to the shareholders.

The resolution was then carried unanimously, and the meeting adjourned to that day four weeks, Oct. 23d, to confirm, or otherwise, the resolution.

Mr. PHILLIPS (the secretary) explained, that although Mr. Buchanan valued the available stores at \$138,000, there were others to a much larger amount. They were valued, up to Christmas last, at \$400,000, but a large portion could not be available immediately.

The CHAIRMAN stated—and his observations were borne out by a private letter afterwards read by Mr. Taylor—that whatever parties formed a company, to prosecute this property, must go on with energy in completing the Aviadero adit; the shafts were nearly all down, and it could be commenced at various points at once, and, when opened, would drain the entire of the present workings. It might be completed in three-and-a-half years for about \$300,000, and the mine would then be a most profitable concern; they would have the benefit of all the present company's large outlay, and all their woful experience, which would teach them what to avoid, as well as how to proceed.

A vote of thanks was then passed to the chairman, and the meeting separated.

CWM ERFIN MINING COMPANY.

At a quarterly meeting of adventurers, held at the offices, George-yard, Lombard-street, City, on Wednesday, the 27th of September, Mr. JAMES STRIDE, in the chair,—the accounts were examined and passed, showing—Balance at last account, 81. 6s. 4d.; call of 10s. per share, 600l. = 608l. 6s. 8d.—By labour cost for April, 107l. 14s. 5d.; merchants' bills, 42l. 17s. 3d.; ditto May, 91l. 11s.; bills, 9l. 3s. 5d.; ditto June, 123l. 18s. 10s.; bills, 25l. 3s. 8d. = 400l. 8s. 7d.; leaving balance in favour of adventurers of 107l. 17s. 9d.—Mr. T. P. THOMAS (the purser) reported having purchased a water-wheel, crusher, pumps, rods, &c.; and he also reported on the prospects of the mine.—Mr. STRIDE submitted a report of the committee, appointed August 21st, stating that the purser and secretary had relinquished each 2l. 2s. per month from their salary.—It was resolved, that the report be received; that the purchase of the machinery be approved of; that a call of 10s. per share be made payable forthwith; and that the shareholders in arrears be informed that, unless such arrears are paid forthwith, the purser is instructed to enforce payment by legal means.

EAST TAMAR MINING COMPANY.

The meeting of shareholders, convened for Thursday last, at the office of the company, was adjourned, in consequence of so slight an attendance, to Friday, the 10th Nov., when information of considerable importance will be laid before the proprietors. The following report from the manager (J. Wolferstan, Esq.) had been received:—

East Tamar Consols.—The shaft is sunk 8 fms. 3 ft. below the 60 fm. level; the ground, which, for some time past, has been hard and troublesome, is now very favourable, and we expect the men will complete their stint (12 fms.) in the course of the ensuing month; the lode in the north end, in the 60 fm. level, is 3 ft. wide, composed of can and lead, and worth 7½ cwt. of ore per fm.; in the south end, in the same level, the lode is 2½ ft. wide, worth 7 cwt. of ore per fm. The lode in the north end, in the 46 fm. level, is 2½ ft. wide, and will produce 8 cwt. of ore per fm.; in the south end, in the same level, the lode is 3½ ft. wide, composed of spar, capel, and some stones of lead; there is a considerable quantity of water issuing from the end, and we expect the lode will very shortly be more productive. The lode in the back of the 36 fm. level is yielding much better work than usual—in fact, the best we have raised from this level, has been during the past week. The pitches generally are looking well, and yielding rather above the average quantity of ore.

HERODSFOT MINING COMPANY.

At a meeting of shareholders, held at the mine, on Friday, the 22d inst.—W. D. BOASE, Esq., in the chair,—the accounts for June and July were presented, showing—By calls received since last account, 30l.; by sales of lead ore, in June, 776l. 6s. 11d.; in July, 858l. = 1664l. 6s. 11d.—Balance of last account, 25l. 12s. 4d.; labour and materials, in June, 621l. 9d. 2d.; in July, 748l. 14s. 10d.; paid Mr. Rowe's dues, 43l. 12s. 11d.; leaving balance in hand of 224l. 17s. 8d. The following report from Capt. J. Medlen and Peter Dunstan was read to the meeting:—

In reporting to you the progress of the mine, we would wish to state that, since our last general meeting, we have divided and cased down the shaft to the 106 fm. level, fixed a 10-in. drawing-lift, cut the platt, drove and cut the lode, driven 3 fms. south and 2 fms. north in the 106 fm. level; the lode in the south end is 4 ft. wide, producing 1 ton per fathom; in the north end, the lode is 2 ft. wide, producing good stones of ore; the lode in this level, although comparatively poor at present, is of a very promising appearance, both in size and character, being composed of a beautiful white spar, interspersed with lead; the ground also is very favourable for driving—the present price for driving north by the side of the lode is 30s. per fm. The 90 fm. level has been driven north 4 fms.; the lode in the end is split into three branches; the western branch, which we consider the main part of the lode, producing some good stones of lead. A winze has been sunk under this level 2 fms.; the lode is 2 ft. wide, producing 1 ton of lead per fm. This level has been driven south 8 fms.; the lode in the end is 2 ft. wide, producing 1 ton per fm.; in the back of this end we have risen 4 fms., and holed to a winze sunk under the 82, which has opened tribute round. The 82 fm. level has been driven north 5 fms.; the lode in the end is 20 in. wide, producing 1 ton per fm. This level has been driven south 8 fms.; the lode cut into near the end is 2 ft. wide, producing good stones of lead. A winze has been sunk 7 fms. under this level, 20 fms. north of the shaft, where the lode is 2 ft. wide, producing 1 ton per fm. The 72 fm. level has been driven 4 fms. north; the lode in the end is 18 in. wide, producing 1 ton per fm. This level has been driven south 3½ fms.; the lode is 2 ft. wide, and worth about 1 ton per fm. The 62 fm. level has been driven north 5 fms.; the lode is small and poor. In a winze sinking under this level, the lode is 9 in. wide, producing 7 cwt. of ore per fm. Winsor's shaft has been sunk from the 52 to the 72 fm. level. About 5 fms. under the 52 fm. level the shaft went through the lode, where we had a good bunch of ore. We intend setting some new pitches at this shaft on our next setting day. We have sampled 80 tons of ore for July, samples of which have been forwarded to the different buyers. We regret that our samplings have not been equal to our expectations, in consequence of several of our new pitches not turning out according to our calculations; but from the present appearance of the tribute part of the mine, which is much better than it has been for several months past, we hope to sample from 90 to 100 tons next time, and expect a gradual increase in future. We have also nearly completed our extensive works, and now hope to reap the advantage of them, in working with greater economy.

TREVISKEY AND BARRIER MINING COMPANY.

A two-monthly meeting of adventurers was held at the mines, on Monday, the 18th inst., when the accounts for June and July were examined and passed. **TREVISKEY.**—Amount of ores sold May 25 (less lord's dues, 103l. 9s. 8d.), 1184l. 6s. 5d.; ditto for June account, 2l. 10s. 8d.; materials, 5l. 12s. 1d. = 1146l. 9s. 2d.—By labour cost two months, 624l. 18s. 8d.; tribute on ore, 115l. 1s. 11d.; merchants' bills, 217l. 5s. 8d.; Treasurers' adventurers, engine cost, 95l. 9s. 5d. = 952l. 15s. 8d.—leaving profit, 193l. 10s. 11d., to which add balance in hand end of May, leaves total balance in favour of 204l. 10s. 2d.—The following is the report presented:—

In the 260 fathom level, 3 fms. west of Michael's shaft, the lode is 3 ft. big, producing stones of ore. In the 260, 4 fms. east of the shaft, the lode is 2 ft. big, producing stones of ore. In the 245, 30 fms. east of the shaft, the lode is large, and worth 504 per fm. The winze sinking in the 236, east of the shaft, will produce 2 tons of ore per fm. The winze sinking in the 224, east of the shaft, will produce 1½ ton of ore per fm. The lode in the 176, 188, 200, 212, and 244, is small and unproductive. The lode in the 30 fm. level, driving west of Williams's old sump-shaft 5 fms. below the 30 fm. level; we intend to sink it to the 40 fm. level, and to commence driving south, for the purpose of intersecting the north and Treasurers' lodes; and also to cut the lode on which we are driving in the 30 fm. level west. On Wednesday last, we sampled 270 tons of ore, and expect to raise 300 tons for September and October.

BARRIER.—Labour cost for June and July, 92l. 10s. 11d.; tribute on ore, 47l. 3s. 1d.; merchants' bills, 26l. 15s. 6d.; Treasurers' adventurers, engine cost, &c., 28l. 12s. 2d. = 195l. 1s. 7d.—By ore sold (less lord's dues, 134. 6s. 2d.), 172l. 7s. 4d.—leaves balance against the mine, 22l. 14s. 3d., which deducted from balance in hand end of May, leaves balance in hand, 31l. 3s. 2d.—The following report from Capt. Joseph Jennings was read to the meeting:—

The ground above the 248 is very nearly worked away; we cannot, therefore, set any pitches until the 260 fm. level is driven through this sett, and a winze sunk from the 248 to the 260.

WHEAL TREHANE MINING COMPANY.

At a two-monthly meeting of adventurers held at the mine, on Thursday, the 21st inst., the accounts were examined and passed, showing—Balance of last account, 438l. 4s. 7d.; lead ore sold, Walker, Parker, and Co., 937l. 8s. 3d.; fines, 2l. 2s. 6d. = 1437l. 15s. 4d.—By labour cost May and June, 498l. 18s. 11d.; merchants' bills, 151l. 6s. 10d.; Treasurers' adventurers, for use of engine and water, 33l.; dividend declared July 26, 256l.; dues, 64l. 12s. 7d.; bankers' interest and commission, 42l. 9s. 5d. = 1046l. 6s. 8d.—leaving balance in favour of adventurers of 391l. 8s. 7d.—It was resolved, that a dividend of 20s. per share be declared, payable on the 28th inst.—The following report from Capt. S. Richards was read to the meeting:—

The lode in the 55 fm. level north is worth 1 ton of lead per fm.; in this level south the lode in the last 5 fms. driving has produced 1 ton per fm.; the present end is worth 8 cwt. of lead per fm., and the ground favourable; in the rise and stopes, in the back of this level, the lode is turning out tolerably well. In the 45 fm. level the lode is worth 9 cwt. of lead per fm.; we are sinking a winze near the cross-cut in the bottom of this level, and the lode is producing 1 ton of lead per fm.; I expect this winze will be holed to the rise in the back of the 55 fm. level by the end of the present month, which will be a great advantage for stopping and ventilation; the lode in the stopes, in the back of the 45 fm. level, is producing 7 cwt. of lead per fm.; the sinking the winze near the boundary, in the bottom of this level, is for the present suspended, on account of water, the lode in

which is without any important change. The slopes in the bottom of the 30 fm. level north are producing some tolerably good work; the cross-cut west, in this level, is driven 37 fms., and the ground continues favourable. We sample, on Saturday next, about 64 tons of good quality ore.

WHEAL WALTER MINING COMPANY.

An adjourned special general meeting of adventurers was held at the offices, King-street, Cheap-side, on Wednesday, the 27th inst.

HENRY SMITH, Esq., in the chair.

Mr. JOHN WEEKES being present on behalf of Mr. Walter Weekes, the purser, whose accounts formed subject of investigation, which were referred to the present meeting, that gentleman stated, that in consequence of certain errors which had been represented to have been discovered in the accounts, or items, requiring explanation, it would be desirable that the meeting should be further adjourned, so as to allow of their being entered into and examined, and an amended balance-sheet, if necessary, submitted to the adventurers on a future day.—Mr. Fox also attended as the agent of Mr. Bridgeman, the attorney of Mr. Walter Weekes, who concurred in the proposition submitted, and undertook that Mr. Walter Weekes should personally attend at the next meeting, to afford any explanation which might be deemed necessary.—It was thereupon resolved, that the meeting should adjourn until Wednesday, the 18th October, to receive the amended balance-sheet of the purser, in account with the adventurers, and on other business.—The meeting then adjourned.

TRESEAVAN.—At a two-monthly meeting of adventurers, held at the mine on the 26th inst., the accounts were examined and passed, showing—Copper and tin ores sold, June and July (less lords' dues, 1157. 5s. 1d.), 2189. 19s. 11d.; sundry credit, 2254. 7s. 8d.—24167. 7s. 2d.—By labour cost, July and August, 1484. 15s. 5d.; merchants' bills, 7111. 10s. 5d.—21967. 5s. 10d.: leaving profit, 219. 1s. 4d., to which add balance in favour at last account, 7607. 17s. 6d., leaves balance in hand, 9797. 18s. 10d.

TRETHELLAN.—At a two-monthly meeting of adventurers, held at the mine on the 26th inst., the accounts were examined and passed, showing—Copper ores sold (less dues, 267. 8s. 3d.), 3691. 16s. 7d.; West Trethellan adventurers, for materials, &c., 8027. 13s.—6722. 9s. 7d.—By labour cost, July and August, 2297. 9s. 3d.; merchants' bills, 871. 9s. 7d.—3167. 18s. 10d.: leaving profit of 3557. 10s. 9d., to which add balance in favour last account, 4717. 8s. 6d.—8264. 14s. 3d., from which deduct dividend (51. per 120th share), 6007. leaves balance in hand, 2267. 14s. 3d.

MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

CARADON COPPER MINE.—This mine is situated south down the valley from South Caradon; here, I really think, they have a very good adventure. They have cut what they call their north lode, about 6 ft. wide, whence some very good stones of copper have recently been raised; and, on the whole, their prospects are very cheering—such is the general opinion of the agents of this neighbourhood with whom I have conversed. The water is kept by a water-wheel; but I fear little trial can be given to the sett without a steam-engine.

EAST ALVENKEY is about recommending, under some new adventurers.

GONAMENA.—Three or four months more will tell something about her, as by that time, they will be able to work on Gilpin's lode from West Caradon eastward, in the 34 and 60 fm. levels—this lode having produced very well as far as it has been laid open. The engine-shaft being down to the 68 fm. level under the adit, is a sufficient depth to give the mine a fair trial; and the monthly cost will be lessened in future—at the same time, they will be driving their cross-cut, for the purpose of seeing the other lodes.

POLSAITH CONSOLS.—They have sunk the shaft at Tinner's Hill 12 fms., and cut the lode, and find it 8 ft. wide, still in a bundle of gossan, with occasional stones of lead. When we turn our attention to the most profitable standard mines in Cornwall, we find in those the gossan lasted down to a good depth—some places 50 fms. There is no doubt of our finding some bunches by extending our level, but would recommend sinking the shaft, both at Tinner's Hill and Trebetherick, deeper. We have in our 12 fm. level, at Tinner's Hill, as fine a lode as I ever saw. I hope, ere this reaches you, we shall have holed the winze at Trebetherick.

SOUTH BASSET.—Here they are looking much as usual. In North Basset they have a large and kindly lode, on the course of which they are sinking in South Basset, with the same encouraging prospects.

SOUTH WHEAL FRANCES.—The prospects here are good. They sampled on Monday last 205 tons of rich ore; which I find, according to the private assay, as follows:—58 tons, 12½ produce; 52 tons, 22½ ditto; 95 tons, 19½ ditto.

TREVISKEY AND BARRIER have certainly improved.

WHEAL MARY ANN is looking better than she has for some time past. They have cut the lode in the 40 fm. level from Pollard's shaft, where it is much improved from the 30 fm. level above. They have also a good lode in the 40 fm. level, south from Barrett's shaft.

WHEAL PHENIX is reported to have improved. They are sampling about 40 tons of copper ore every two months, and occasionally a parcel or two of tin.

WEST TOLGUS.—They have a very kindly lode in the shaft, and also in the adit some fine stones of ore, and a large quantity of muddle—indeed, I have not seen so promising a lode since they have been working.

[From the Plymouth Journal.]

WHEAL FRANCO.—The lode in the 63 fm. level is not as yet cut. The 47 is producing good work, and the ore is much improved in character.

PLYMOUTH WHEAL YEOLAND.—The engine-shaft is sunk about 30 fms., and the character of the ground is improved. The new shaft lode has not been cut in the adit, but has been driven through from the new engine-shaft about 9 fms., the average value is 207. per fathom; the lode in the shaft is more than 7 ft. wide, is rich, and will leave a profit to the adventurers.

WHEAL CALSTOCK.—This mine now bids fair to reward the perseverance of the adventurers during a period when mining had been so depressed, and so many mines abandoned. The shaft has been sunk to the deep adit, or 50 fm. level, where a good course of copper ore has been cut, about 1 fm. of the lode has been taken down; this has produced over 3 tons of ore; the lode is being further laid open, and should the ore continue, of which there is every appearance, this will be a profitable mine forthwith. There are other equally promising lodes, both north and south, which will be at once explored.

QUEBEC MINING COMPANY.—Captain O. H. Matthews, the manager of the Quebec and Lake Superior Mining Company, has visited their mines, and reported to the directors, in which he states, that the mineral developments are of the most gratifying and encouraging description. The 10 fm. slope was worth 507. per fm., and often attaining a value of from 1007. to 1507. per cubic fm. The middle slope was worth 507. per fm., and cross-cut 407. per fathom; No. 1 slope 707. per fm.; and a new one was opening, called the "top slope," which was likely to attain an average value. In a previous report, he stated that 600 tons of ore have been raised, value 20007., since which 147 tons have been extracted, worth about 5037. His arrangements for the ensuing month would be, rather to extend the development of the mines than to raise a large quantity of ore; and, for this purpose, he had discontinued the 10 fm. level altogether for a time—notwithstanding which, he expected to realise ore to the amount of 5007. or 6007. Having formerly valued the ore in sight at 80,0007., he had, on this occasion, taken a closer inspection, and has found that, instead of 30s. per ton, which, for fear of exaggeration, he had formerly valued it at, it was worth from 80s. to 90s. At all events, it might be taken at 50,0007.

MINERAL WEALTH OF NEW ZEALAND.—By the report of the Lords Commissioners on Colonisation, we learn that mineral wealth has been found in abundance. Large lodes of copper have been discovered, the ore of which is good, and easily obtained. Manganese abounds everywhere, and there are also indications of ironstone. A German doctor who came out discovered a tea-cupful of small rubies fit for a watchmaker, which he found on the Manawatu river. In the south, at Wanganui, there is abundance of coal, all on the coast, and at present quite on the surface. This coal is strongly impregnated with sulphur, so that it discolors any lacerated furniture there may be in houses, but is admirable for steamers. It is said, however, to partake of the character of some of the oriental coals, and to have the property of spontaneous combustion. In all directions there is abundance of water-power. The unoccupied land that might be profitably cultivated is extremely great. At 40 miles from Wellington there is an immense plain, reaching from Palisier Bay quite into the interior, where the natives never go, from superstition. They call it the land of witches.

MINING IN SOUTH AUSTRALIA.—We glean the following from the papers, in addition to the news from this portion of Australia, published on Saturday last. The mining interest has received the greatest encouragement—new lodes are almost of daily discovery. The Burra Burra yields from 20 to 30 tons of copper ore weekly; aggregate length of the levels open in the mines, 3 miles, 4 chains, 52 links. On June 1, the Burra Burra directors made the quarterly dividend of 200 per cent. (or 102 on every 51 paid up.) From a census taken at the Burra Burra there were, on May 13, 1848, no less than 913 males, and 578 females. Dr. Rankine has purchased the Strathalbyn Mines, which are likely to turn out very profitable—a large and promising main lode has been opened, giving excellent ore. The mines of the Port Lincoln Company have been opened, showing one lode perfectly regular at the surface, nearly 30 inches in width, of solid ore, yielding 51 per cent. of pure copper. Other lodes have been found. The late accounts of the Bon Accord Mine are encouraging. The Adelaide Smelting Company, for working Dr. E. Davy's patent, are now making active preparations for the establishment of their works; 10 acres of ground, presented by Osmond Gilles, Esq., adjoining Albert Town, have been accepted for the works. The smelting works are named Yatala, after the hundred in which they are situated. At the Greenock Creek Mine, fine ore, in large quantities, is being raised. The affairs of the Royal Mining Company are very promising, north of the Kapunda.

NEW PROCESS OF SMELTING COPPER.

[Continued from last week's Mining Journal.]

"The ore operated upon by MM. Rivot and Phillips, at Grenelle, in the presence of the commission appointed by the Society for the Encouragement of the Arts and Manufactures, &c., was obtained from Dillenburg: it is a pyritic copper, with a quartz gangue; it loses, roasting at a high temperature, 18 to 19 per cent. of its weight. The roasted ore contains—

Peroxide of iron	44
Dioxide of copper	28
Silica	28 = 100.

"The charge of the furnace was composed of—

Roasted ore	2 2 19
Lime	0 1 9
Quartzose sand	0 2 0

"To which were added—

Slag of a preceding operation	0 3 10
Coal in small pieces	0 0 20

"The fire of the furnace having been lighted for three hours, the above charge was thrown in. An hour and a half after the charging was made, the half-melted mass was begun to be raked, and this was continued every half hour, for two or three minutes each time. Five hours after charging, the mass, being in a complete liquid state, six bars of iron, weighing 3 qrs. 10 lbs., were placed in the midst of the scorified mass. Each bar occupied the whole width of the furnace. From time to time, small pieces of coal were thrown on the fused mass, and the raking continued. At the expiration of four hours, the bars were drawn out, and the metal run off; the loss in weight of the bars was 4½ lbs. A malleable copper, with a good texture, was obtained, which was found to contain only a few thousandths of iron and sulphur. A second fusion would suffice to render this metal fit for all manufacturing purposes. The slag is black; and on analysis was found to contain only 6½-1000ths of copper. The details we have given, prove that the process of MM. Rivot and Phillips enables us to treat the ores of copper in such a way, as to obtain, by one roasting and one fusion only, almost pure copper, and, at the same time, slag, sufficiently poor to be thrown away. It has been tried on a sufficiently large scale to enable us to conclude with certainty, that its application would be of advantage in large works. We are not able, at present, to state the precise amount of economy resulting from the employment of this process; but the simplification of the operations does not permit us for an instant to doubt that there would be a considerable saving both in fuel and labour. The application of the process of MM. Rivot and Phillips to copper ores containing arsenic and antimony, does not give pure copper, but alloys of this metal, with arsenic and antimony—the purification of which is difficult. Your commission, therefore, limit the recommendation of the employment of this process to the treatment of the oxides, or sulphurets, of copper, which fortunately are the most important. Your commission consider that the results obtained by MM. Rivot and Phillips, after much practical research and considerable expense, merit the recommendation of the society. Correct theoretical views, and chemical analysis, have constantly guided these two young engineers in the invention of their process, which they have put in practice themselves—handling the rake, and regulating the fire, with the skillfulness of experienced workmen. Your commission propose to the society to accord its approval of their labours, and to insert this report in the *Transactions* of the society."—The report of the commission was approved and adopted.

DEPRECIATION IN THE VALUE OF RAILWAY PROPERTY.

The following is a comparison of the highest prices of shares in eight of our principal railways in 1845, and present market value, showing the amount of decrease:—

	1845—Price.	Present Price.	Decrease.
Eastern Counties & Northern & Eastern	£21	12½	8½
Edinburgh and Glasgow	91½	39	52½
Great Western	225	70½	154½
London and Birmingham	246	109½	137
London, Brighton, and South Coast	80½	26½	54
London and South-Western	82½	38½	44
Midland	192	82	110
York and North Midland	113	54½	59½

In 1845, 807. per share had only been paid on the Great Western shares, at present there is 907., which of course adds 107. to the depreciation—Consols were at that period from 99 to 100, they are now 86½.

EXPORTATION OF SPECIE FROM NEW YORK.

The following table shows the date at which specie has been returned to Europe from that Port:—

Steamer <i>Cambria</i> , Liverpool ..	Sovereigns	9,500
Ship <i>St. Denis</i> , Havre	Mexican dollars	6,925
Ship <i>St. Denis</i> , Havre	Five-franc pieces	84,690
"	French gold	440
"	Mexican dollars	67,770
"	American gold	2,000
Total, August 26 to September 9		8 161,325
Shipments, January 1 to August 21		3,380,118
Total for 1848		83,541,443

IRIDIUM ORE.—An importation having recently taken place, by a vessel from France, of iridium ore, a question has arisen as to its liability to duty, it having been retained by the officers of the revenue as liable to the rated duty, as an extract, of 5s. per lb.

NORTH DEVON WHEAL ROSE MINING COMPANY.—The parish of Comb-martin and its neighbourhood, in North Devon, has for ages been famous for the production of silver-lead ore; it is an authenticated fact that they were worked in the reigns of Edward I., Henry V., Queen Elizabeth, and Charles I.; and the inference that we may justly draw from these facts, is that they were not quite neglected in the intermediate periods, but continued to enrich their proprietors. We have before us a prospectus of a company, under the above title, formed for working a tract of mineral ground in the parish, extending over 1200 acres of land, within a few hundred yards of the Bristol Channel, and 21 miles distant from Swansea. It appears that eight lodes of silver-lead ore, and one of copper, have already been opened upon, some of the former producing several hundred ounces of silver to the ton of ore; and the ore now raising is valued at 307. per ton. There is an engine, 26-inch cylinder, in good working condition, engine-house, smith's shop, material-house, carpenter's shop, and other requisite buildings, on the mine. It is held on lease for 21 years, at 1-18th dues. The conditions for transferring the property to the company are, that the present proprietors be paid 5007., receive 1000 free shares of 27. each, and 1-10th of the profits for the first two years; it is divided into 2250 shares of 27. each, being the full amount required for carrying out the objects of the company. In a report by Mr. W. Trelease, he says, "I examined the south lode, discovered a fortnight ago; a pit has been sunk on it 7 ft. deep; and, at its slight depth, it is from 12 to 15 in. wide, composed of very rich gossan and spar. This lode was never seen by the late company. I next examined the lode going east from the adit level, which produces large rocks of ore on its back; three men have been employed about six weeks in sinking shallow pits, of 6 ft. deep, on the course of the lode, and, in that time, they have raised more than 3 tons of silver-lead, in blocks, weighing from 20 lbs. to 850 lbs.—three of them weigh respectively 410 lbs., 620 lbs., and 850 lbs. Now, it is my opinion that there is a vast quarry, or mass of ore, below where these stones laid, and that they have been heaved by an eruption of the earth. In the 40 fm. level, extended several fathoms westward, a valuable course of copper ore was cut, on which the men sunk 10 ft.; and I am informed by parties who formerly worked the mine, that there is now standing at the bottom a rich course of solid copper, proved by assay to be worth 407. per ton as raised from the mine. I have obtained some which is quite equal to that from Wheal Maria. There is a fine steam-engine, which has taken a shaft down 40 fms., and will do 60 more if required; coals are delivered at 8s. 9d. per ton; there is a great advantage, that a smelting-house is working within a mile of the mine, and even if the ores are shipped to Wales, Swansea is only 21 miles distant." It appears that this mine was worked, some years back, by a company of several persons, who raised 2000 tons of rich ore; but, from disagreement among themselves, it was stopped, and eventually the lease became forfeited. At the time of stoppage there was abundance of ore in sight in the different levels, one course of silver-lead being 4 ft. wide, which can be immediately worked upon on draining the mine by the engine, which could be set to work in six days.

MINING IN NEWLYN.—It is a fact so notorious, that it is scarcely necessary to notice the comparative inanimate appearance which the mining interest in this county now generally presents. Yet, amid the general wreck, and the further winding up of many hitherto valuable concerns, it is satisfactory to find there are a few which are still doing something, and thus giving employment to thousands of our population, who otherwise must be thrown upon parochial relief. The famous East Wheal Rose still maintains her high standing among British silver-lead mines; and we learn from the report just published for May and June that, although during that time she has been at a cost of about 74007., she has nevertheless remunerated the adventurers with a dividend of 267. per 120th share.—*Pennance Gazette.*

SHREWSBURY AND CHESTER RAILWAY.—We understand the opening of this line has been deferred until the second week in October.

Current Prices of Stocks, Shares, & Metals.

STOCK EXCHANGE, Saturday morning Eleven o'clock.	
Bank Stock, 5 per Cent. —	Belgian, 4½ per Cent. —
3 per Cent. Reduced Ann. —	Dutch, 4½ per Cent. —
3 per Cent. Consols Ann., 85½	Brazilian, 6 per Cent. —
3½ per Cent. Ann. —	Chilian, 6 per Cent. —
Long Annuities, —	Mexican 5 per Cent. —
India Stock, 10½ per Cent. —	Russian, 5 per Cent. —
3 per Cent. Consols for Acct. 86	Spanish, 5 per Cent. —
Exchequer Bills, 1000l. 3d. 26 pm.	Ditto 3 per Cent. —

MINES.—There has not been much activity in the mining share market during the week. The reports from the mining districts are, however, highly encouraging, as far as the general appearances of the mines are concerned, but the continued depressed standard is truly disheartening.

Buyers are to be found for Treviskey and Barrier, South Wheal Basset, West Caradon, and Condurow, but the sellers' prices are not generally met. Devon Great Consols have been done rather under last week's quotations. Trethellan and East Pool are represented to have improved. South Trelawny has been in request, in consequence of cutting the lode at the 30 fm. level, which is represented to be highly promising, as far as they have proceeded.

Shares in the following mines have changed hands since our last:—Devon Great Consols, Trelawny, West Tolgus, Trehan, Gonamena, Treviskey and Barrier, Wheal Mary Ann, Tamar, Tregordon, South Trelawny, Callington, East Tamar, Mendip Hills, and Herodast.

The Treviskey and Barrier bi-monthly account meetings for June and July were held on the 18th, when the statement of accounts presented, showed a profit of 1937. 18s. 11d. on the two months' working in Treviskey, and a loss of 227. 14s. 3d. in Barrier, which, deducted from the balance left in hand at the previous meeting, leaves 817. 3s. 2d. to the credit of Barrier—2357. 18s. 4d. is now carried to the credit of the two mines. No dividend was declared. The report shows an improvement in the 248 fathom level east, which is worth 507. per fm., and 300 tons are expected to be raised for September and October.

Wheal Trehan adventurers held their two-monthly meeting on Thursday, the 21st, to audit the accounts for May and June, when a dividend of 20s. per share was declared; the profits on the two months amounted to 3917. 8s. 7d.; 64 tons of good quality ore were sampled on Saturday last, which, from private assays, are rich for silver. The agent's report represented the prospects of the mine as being in a very encouraging position.

Herodast account meeting for the months of June and July was held on the 22d, and from the statement presented, we find a profit of 2247. 17s. 8d. on the two months' workings. The lead ore sold during that period realised 16347. 6s. 11d. The agent's report of the mine is highly favourable; and, although the next month's sampling may not reach to 100 tons, a progressive increase may in future be calculated on.

The Trethellan two-monthly meeting was held on Tuesday last, when the accounts for July and August were audited, and a dividend of 57. per 120th share was declared, leaving a balance of 2267. 14s. 3d. in hand.

Treviskey bi-monthly account meeting was also held on Tuesday last for July and August. The statement shows a profit of 2197. 1s. 4d. on the two months' working, with the balance on last account, leaving 9797. 18s. 10d. in the hands of the purser. The sales of copper ore in June and July realised 23057. 5s.

Cwm Erfin two-monthly meeting was held on Wednesday, when a call of 10s. per share was made.

Our attention has been drawn to the prospectus of the Irish Amelioration Society (which appears in our advertising columns), having for its object the means of furnishing employment to, and improving the social condition of, the labouring classes of Ireland. The board of direction, constituted to carry out the motives of the society, stand too high for the most sceptical to fear the least deviation from the principles proposed to be effected and embodied in the detailed prospectus. The society proposes, by means of the patent taken out by Mr. Jasper Rogers, to prepare peat from the bogs of Ireland, for the purposes of fuel, the utility and advantages of which are too numerous to notice in a brief summary. The conversion of peat into charcoal, for smelting and the manufacture of metals, and to be applied as a manure for sanitary and general purposes, may be considered one of the greatest scientific improvements of the day. In the smelting of iron especially, peat charcoal has been practically proved superior to either coal or coke, and is successfully used in several extensive iron districts on the continent. As a fertiliser, or manure, it is strongly recommended by our best agricultural chemists, and approved of by high practical authority; and, for sanitary purposes, it has been pronounced perfect in its effects; whilst, for general usefulness, in the production of intense heat, it may be considered admirably and particularly adapted to steam navigation, in consequence of its bulk requiring less space than any other fuel. Setting aside the laudable and philanthropic motives of the society, and looking at it only in a commercial point of view, we believe it a safe investment, and one likely to become remunerative; and, as such, recommend it to public notice.

The transactions in foreign shares have been very limited this week, if we except Australians, in which some business has been done at fluctuating prices. Bolanos, St. John del Reys, and Imperial Brazilians, have changed hands.

A special general meeting of the proprietors of the Real del Monte Mining Company was held at the offices, on Monday last, for the purpose of considering the propriety of dissolving the company. The chairman (Sir Robert Price, Bart.) proposed, "that it was expedient that the company should be immediately dissolved," which was adopted. Despatches had been received that morning from the superintendent at the mines, from which it appeared, that a weekly loss of £1740 was sustained in working the mines, and without any probability of a successful result, before a further considerable outlay to unwear the mines had been made. That day four weeks was named for the next meeting, to confirm the above resolution.

Dispatches have been received, per *Teviot*, by the United Mexican, Real del Monte, Bolanos, and Anglo-Mexican Mining Associations. The United Mexican letters are to the 7th August, but the report contains nothing of importance, more than a promised remittance in September. The Bolanos and Real del Monte reports will be found at length in another column. The Anglo-Mexican letters are to the 4th Aug., and represent the loss on the five weeks' workings at Ascension (from the 1st July to the 29th) at \$178.

By the India and China mails, we learn that the metal markets of the East have not much improved. The advices from Calcutta and Bombay state, that the sales of copper had not been large, but there had been inquiries during the week, and stocks generally light. Letters dated 7th August from the former place, and the 5th Aug. from Bombay, state that spelter is little in demand, and stocks small; large imports are anticipated from England, and a lower price calculated on. Bar iron had fallen, but other kinds had been selling at fair prices. Lead had met a fair demand, and the plates declined in value. The Canton market is represented to be heavy. Lead had slightly improved, and iron was without much alteration; but in metals generally little or nothing was doing.

The following arrivals of specie have taken place since our last:—viz. The Royal West India Mail Steam Company's ship, *Teviot*, arrived at Southampton, on Sunday, the 24th, instant, having on freight \$341,414 in silver dollars, \$23,670 in gold, British coin, value 7327. 17s. 4d., 3200 five-franc pieces, 14 cns. of gold in bullion, 47½ doubletons, 135 guineas, 360 fr., 1944 cns. of silver bullion—total value of specie, 76,7667. sterling. The Peninsula and Oriental Steam Navigation Company's ship, *Montrose*, also arrived at Southampton on Sunday, having on freight 35 packages of specie, and 11 packages of gold coin.

HULL, THURSDAY.—The share market remains drooping and neglected—the chief operators being the bears, either buying to meet former sales, or entering into new speculative operations for the fall—in our opinion, a most unsound state of things.

EXPORTATION OF THE PRECIOUS METALS.—The following are the official returns of the exports of gold and silver from the port of London for the last week:—Silver bars to Rotterdam, 73,000 ounces—Silver coin to ditto, 13,900; ditto to Calais, 1200; ditto to Belgium, 2000—Gold coin to Havre, 252; ditto to Belgium, 151; ditto to Calais, 120 ounces.

CURRENT PRICE OF GOLD AND SILVER.				
Foreign gold, in bars	per oz.	£3 17 9	New dollars per oz.	£2 4 10½
„ Portugal pieces	0 0 0	0	Silver in bars (standard)	0 4 11½

THE ROYAL CORNWALL POLYTECHNIC SOCIETY.

The meeting of this society took place at Falmouth, on Wednesday last, the 27th inst. Sir Charles Lucas, Bart., M.P., as president, appeared in the chair at one o'clock, and briefly directed attention to the more prominent works of art and mechanism, which the several contributors had afforded, and which, on the whole, was not wanting in interest to any exhibition of former years. The catalogue of the articles is classified thus:—In the mechanical department, 53 articles; architectural and mechanical drawings, 128; sculpture modelling and paintings, 168; fancy work, 68; school productions, 149; and oil paintings for exhibition, 61. Some deal of curiosity was attracted towards a pair of shoes, cut out and made entirely, with the exception of binding, by James Hule, a miner, of the parish of Gwennar. He lost his sight by an accident underground 17 years since, at the age of 20. He never learned to make shoes in his youth, but taught himself after his accident, in order that he might maintain his wife and six children, which he has done, without receiving any relief from his parish.

The audience comprised the *élite* of the country, and was honoured with the presence of the First Lord of the Admiralty, Lord Auckland, who arrived in the *Undine*, and was accompanied by Earl Morley, Lord John Hay, Admirals Dundas, Sir W. Gage, and Sir John Lewis, Captain Carter, R.N., and several ladies. After visiting Penzance Castle, his lordship and the gallant party returned to the *Undine*, which instantly got under weigh, and proceeded on her return back to Plymouth.

We shall, as usual, give a detailed report of the proceedings in next week's Journal.

TRIBUTE TO SCIENCE.—We are happy to learn that the eminent geologist, Charles Lyell, jun., has had the honour of knighthood conferred upon him by the Queen, as an acknowledgment of his services in his peculiar field of science and research. The event is the more pleasing, from the fact of Sir Charles having received a special invitation to visit her Majesty at Balmoral Castle, where the distinguished honour was conferred upon him, after nearly a week's sojourn; during which he accompanied her Majesty and Prince Albert in several tours through the interesting neighbourhood.

77.—Wheal Union 9.—Cook's Kitchen 5.—Wheal Hope 3.—Total, 2296 tons.

COPPER ORES

At SWANSEA, for sale Oct. 5.—Cobre 131, ditto 130, ditto 120, ditto 77, ditto 72, ditto 50, ditto 96, ditto 87, ditto 79, ditto 67, ditto 54.—Cuba 121, ditto 103, ditto 89, ditto 77, ditto 70, ditto 63.—Berahven 110, ditto 83.—Chili 54, ditto 53.—Ballymurtagh 57.—ditto 44 Adelside 23.—Cuba 8. Total, 1994 tons.

which was 4s. 4d. per ton, prove a saving to the colonists of upwards of 450l. on that quantity in three months; and as the development of the mineral wealth of that colony is evidently yet only in embryo, and as we may expect the quantity periodically to increase, at least, for some years to come, the saving will prove of really considerable importance. During the past eight months, in which period every state in Europe (England excepted) has been shaken to their centres—Governments displaced—their acts rendered ungovernable—and the blessings of commerce exchanged for the horrors and evils of intestine war—it cannot, therefore, for a moment excite surprise that even here, peaceful although we have been, our trading and other interests should feel the shock from the great European battery, completing as we do the commercial circuit. Insurrectionary movements must, however, have an end. After the excitement, the majority of a people discover that civil war is not exactly the road to either individual or national wealth, or to the establishment of domestic comfort or security; and while they deplore the fanaticism which led to such dangerous remedies for the redress of real, or supposed grievances, they find it absolutely necessary to unite heart and hand for the re-establishment of good order, and the revival of trade and commerce. Such is now the position of most of the states of Europe; and although the commerce of England, as relates to that portion of the Old World, has been in abeyance, the time we believe to be rapidly approaching, when a great and general reaction will take place; and when the demand for copper shall have become renewed from every state in Europe, the late liberal movement on the part of our Legislature—while it induces the importation of foreign ores—will secure to us, as the copper smelters of the world, that desirable position of being the mart to which the whole of the continental states must come for all their requirements; and, under such circumstances, we hope to witness the most beneficial improvements in the returns of the produce of our Cornish mines, and a consequent advancement of the comfort of the mining population, and the interest of the adventurer.

In our Journal of the 2d inst., we gave a report of the proceedings which took place at a meeting of the REAL DE MONTE MINING COMPANY, and adverted, in a leading column, to the probability of the concern approaching a termination. Our columns of this day contain the proceedings at a meeting on the 25th inst., when it was determined that the company should be dissolved, subject to confirmation at a second meeting, to be held on the 23d October. It would, however, appear, from what passed, that hopes are entertained of the formation of a new company, although we have not been able to ascertain whether there are any real grounds for believing this to be probable, in the present state of affairs generally. There is no reason to doubt the statements of the parties concerned, that there exists enough of vitality in the mines themselves, which cannot be said to be by any means exhausted. On the contrary, the reports from the agents, up to the very last moment, continue to be favourable in this respect; but the company has been beaten, by the abundance of water supervening in a time of war, and their inability, from the latter circumstance, and from a want of funds, to furnish the engines necessary for drainage. The plan now proposed, as explained at the meeting, is to complete a deep adit, which the manager in Mexico states may be done in three and-a-half or four years, at a cost of \$300,000, or 60,000l. By this means, a thorough drainage would be established of the productive workings in the old mines, and valuable discoveries might be made on the veins hitherto unexplored; besides the costly and extensive works already executed, a new company would take up the concern under favourable circumstances, having, as the chairman intimated, all the advantages of the present company's dear-bought experience, and so knowing what to avoid as well as what to do. The recent fall in the price of quicksilver, and the improved processes of separating the silver from the ore, are likewise important and seasonable adjuncts to a continuation of operations under new auspices. Moreover, it is to be hoped that the Mexican Government would see fit to encourage a resumption of the works, by a remission of duties chargeable on the produce, and on the materials used, as it cannot be, that they would view otherwise than seriously the entire stoppage of a concern employing directly several hundreds of persons, and supplying the principal means of support to a large population.

In January, 1843, we noticed a publication from the pen of Mr. J. Y. Watson, E.G.S., under the title of a *Compendium of British Mining*, and which at that period did so much towards giving the public a right view of mining matters. It is with much pleasure and satisfaction we this week present our readers with the commencement of a new edition—the author having, after much solicitation on the part of friends to publish a second edition, determined to revise and correct it up to the present time, expressly for our columns. Considering the vast changes which have taken place in mining affairs in the past five years, the greater interest taken by capitalists and the public generally in this species of investment, the greater and still growing confidence between the London adventurer and the Cornishmen, and the number of mines abandoned and others commenced, we have no doubt but that the revised work thus transferred to our columns, will prove of the most important interest to our readers.

At the present time, too, when we have every reason to hope for and expect a prosperous reaction in the metal trade, and a renewal of continental orders, while the recent reduction of the copper ore duties secured us from foreign competition in that metal, the work will, we have no doubt, be hailed with considerable satisfaction by the generality of our readers, giving a full exposition of the details of mining affairs in Cornwall, and serving as a text and guide to all who are about entering on this branch, either as speculators, or for the purpose of investment.

EXTENSION OF THE SOUTH WALES RAILWAY TO LLANELLY.—An adjourned meeting of merchants, proprietors of mineral lands, and others interested in the extension of the South Wales Railway to Llanelly, to be available for traffic, simultaneously with that portion of the line between Newport and Swansea, took place in the Town Hall of the latter town, on Tuesday last, the 20th inst.—Dr. Dine was unanimously called to the chair, who explained the objects of the meeting, and called on Mr. S. Padley, jun., to read the report of the committee appointed at a meeting of the 18th inst., to inquire into the expected traffic between Swansea and Llanelly. This report stated, that revenue from the mineral traffic to be expected, was—Cameron's Coal Company, 6660l.; Spitty Copper-Works (Schneider and Co.), 600l.; coal-works of Mr. S. Padley, 660l.; Weig Fach Coal Company, 600l.—making a total of 7400l. per annum. The committee had sent a memorial to the directors of the South Wales Railway Company, drawing their attention to the subject, and requesting they would complete the railway at least as far as the Loughor River. The contractors have furnished a rough estimate of the cost, which is—tunnel three-fourths completed, 25,000l.; railway, 50,000l. They suggested, that if the public really wished to have the road completed without delay, they should purchase shares quoted at 9s., and pay up the calls; this would improve the market value, and induce the other shareholders to pay. Want of money was the only cause of the present suspension of the works west of Swansea, and the concentration of the money force between Swansea and Newport. The shares upon which 25l. have been paid, are entitled to a half-yearly payment of interest, at 4 per cent. per annum, which has hitherto been regularly paid.—The commercial statistics in the report were confirmed by Mr. J. M. Buckland; and it was resolved, that the report be adopted, and that a copy be forwarded to the chairman of the railway company.—Thanks having been voted to the chairman, the meeting separated.

The cost of the hull of an 80-gun liner, to be manned with 750 men, is about 54,300l.; rigging, sails, and stores, about 16,005l.; ordnance, about 11,732l. The pay of officers and men for one year is 19,812l.; the cost of victuals, 13,325l.; rigging, sails, and stores, 9201l.; wear and tear of hull, 8660l.; wear and tear of ordnance, 463l. The estimate for wear and tear under the three last heads is generally assumed at 1-5th, 1-15th, and 1-25th of the original cost.

THE COPPER DUTIES QUESTION.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Observing in your last paper, that your correspondent upon the late repeal of the copper duties, whose name has not yet appeared, charged me with having, "in the spirit of contradiction," stated, that copper had reduced in price 19l. per ton since 1842, when such was not the case, and added an average of the prices since that year, to prove that Lord George Bentinck was right, and that I was wrong, I beg leave to say, that I made no remark in connection with 1842. The noble Lord had simply stated, in my hearing, that whilst copper ores had reduced 20l. per ton, copper had only reduced 11l. per ton, as I believed in reference to the variations of the last twelve months; and knowing well that copper had fallen 19l. per ton, I supposed that he had been misinformed. I will just add, in conclusion, that I had, individually, no wish for the repeal of the duties, and could have liked to have seen copper higher instead of lower; but my constituents were differently situated; they had a just claim to have copper as cheap as their opponents, after they had lost the protection of their own trades against foreigners; and it was my duty to them to urge that claim. Probably my views as to the necessity of some protection to the mining and all other industrial interests of this country, may not be very dissimilar to those of the late noble Lord. I believe we only differed as to the mode of obtaining it. He would have given protection, upon the old principle, to certain interests, at the expense of others who would not only be unprotected, but prejudiced thereby. I would protect all the industrial interests by one general principle.

Ley Hall, near Birmingham, September 25.

THE MINING INTEREST.

TO THE EDITOR OF THE CORNWALL GAZETTE.

SIR,—I feel I trespass on your indulgence. "Publius," who writes in your paper of the 8th inst., is well known to me, and will be glad that I place myself right when misrepresented. I regret that so sharp a man should have dipped his pen in gall instead of ink, and presume to state that Lord John Russell uttered "bare-faced misrepresentations and falsehoods"—that Mr. Labouchere "asserted what he must have known to be utterly false." Least of all will he advantage the cause he espouses, when he says, "the statements from Lords Lansdowne and Grey were so utterly destitute of truth, as to be disgraceful to them both." This is not the way to gain the hearts of Cornishmen. The British empire—the world itself—cannot produce four more distinguished and honourable men. As regards myself, "Publius" supposes I denied there had been a petition from the mining districts in Cornwall against the Copper Ore Bill. I never said anything of the kind. What I did say, was that the mine adventurers, as such, had not petitioned. To this statement I rigidly adhere. And he states also, that 20 petitions had been presented, at the moment I made the statement, with nearly 10,000 signatures. It is somewhat singular, it was in reading these 20 petitions, that I came to the conclusion that the mine adventurers had not petitioned—and hence my authority. I still say, the great mining interest of our county is in favour of the repeal of the duties on copper ore. I refer to the notes of the Parliamentary Committee on petitions, to show the character of them. Your Gazette of the 4th May is before me, in which you give, from the *Mining Journal* of the previous week, a list of 89 copper mines, their produce in ore and in money, for the quarter ending 25th March last. It is there shown that—

33 mines produced in money	£180,213
56 ditto ditto	14,999
Total	£195,212
But of these 56 mines—	
26 produced for the quarter under	£200 each.
19 ditto ditto	100
11 ditto ditto	500

I ask, what would the protection principle have done for these 56 mines? The 33 mines need fear no foreign competition. In passing, I may observe that not one of the 89 mines petitioned directly, and only nine of them indirectly. It is true Lord Redesdale presented to the Lords a petition signed by 21,548 persons; but it is no less true that this petition no more represented the mining interest than did the 20 petitions presented to the Commons. Another petition was presented by the Earl of Falmouth from an "individual;" that individual was Mr. Treffry—a distinguished man, and worthy the imitation of his class. "Publius" reminds me of the part I took in the question of copper duties in 1842 and 1847, and he thinks my conduct inconsistent. Since that year the Corn Bill has passed—I voted for it in all its stages; the cry then was, "the farmer will be ruined"—the cry now is, "the miner will be ruined"—the ore is as distant as the other. The miners of Cornwall were to a man anxious for free trade in corn—that they will have the benefit of in February next. The miners of Cornwall are not a desponding people—they are not to be schooled into discontent. If I have been inconsistent, it is in my having adopted a principle, and not afraid to carry it out. I stand by my vote, in the unshaken belief that the opinions I have, after deep consideration, expressed, are right. I have not made statements which "cannot but be regretted;" on the contrary, I hope I have best served the mine adventurer and the miner (the latter being dependent on the former), in the course my unbiased judgment has induced me to take. I have aimed at no more in this letter than to defend my opinions and to correct misrepresentations, and in doing so, have, as far as possible, avoided the general question.—E. TURNER: London, Sept. 13.

THE ROYAL POLBERRO CONSOLS MINES.

SIR,—In your account of the renewed working of Polberro Mines, copied from the *Cornwall Gazette* into your paper of last week, it is stated, that "they will be under the management of John Taylor, Esq., to whom the parish of St. Agnes is deeply indebted for his indefatigable exertions in bringing the affairs of the mines to so favourable an issue." As some of your readers may, therefore, attribute merit to me to which I have no claim, I will beg you to notice in your next Number, that to my son, Mr. John Taylor, jun., is entirely due the praise conveyed in the paragraph quoted, he having devoted much time and attention to the subject; and I feel pleasure in adding, that his efforts have been generously aided by the creditors of the late adventurers, who, by making a liberal abatement on their claims, made it practicable to pay in full a large sum of money long due to the poor miners for their labour. I will only further express my hope, that what has been so well begun, may not only prove beneficial to those who depend upon it for their daily support, but that this important concern may, as it is generally believed it will, reward those who have furnished the means of rescuing it from the unfortunate state into which it had fallen.—JOHN TAYLOR: Duke-street, Adelphi, Sept. 28.

MINING IN THE EASTERN DISTRICT.

SIR,—In reply to the letter of your correspondent, "Y. Z.," dated from Liskeard—whose "point" seems to be a wish to depreciate Trehaue—I beg to say, if the lode continues its present underlay, it will continue 100 fms. deeper in the sett, and, instead of coming to a point, will, at that depth (155 fms.) be 35 fms. long. In the 100 fm. level, the lode will be 70 fms. long in the sett.—Y. Z.

P.S.—I would add here, and which I neglected to state in my notice of Trehaue, sent you from Liskeard, there are several thousand pounds' worth of ore standing in reserve above the 55 fathom level.

CORRESPONDENCE FROM THE MINING DISTRICTS.

SIR,—I was much pleased with that peculiar feature in your columns, introduced of late, purporting to be information conveyed from the mining districts, by correspondents, other than those who are professionally agents of the several mines, or interested in presenting to your readers certain statements with private objects. Judging by the course uniformly observed by you, of giving the results of information acquired, without leaning in favour of any concern, or, on the other hand, prejudicing it in public opinion, while the notes, in some instances, assume an editorial form, I felt assured that the "Notabilia" would be useful to those who mainly draw their conclusions from the information gathered from your pages, and who rely on your strict impartiality. It is, then, with much regret that I now feel called upon to direct your attention to a series of paragraphs which have of late appeared, evidently having for their object the bolstering up, or supporting, schemes which may be good in themselves, and in which case, requiring less adroitly than while, if my conclusions be correct, the deductions drawn by you, or your correspondents, are in error. A few words will suffice to establish the point; and should you concur with me in the view I take, I feel well satisfied you will lose no time in putting yourself straight with your readers; or, on the other hand, you will afford such explanation as will satisfy those who, like myself, are but little informed, I observe, among other new speculations announced in your columns, that the Antimony and Silver-Lead Mines have been taken under your special favour, and, I doubt not, you have good grounds to justify the repeated notices which appear in your columns. I recollect the "Model Mine" at one time, in like manner, was put forward, but I suppose, in that particular instance, the fortunate adventurers are content, if not satisfied, by finding the funds to meet the monthly cost, although I hope that they will be able to announce a dividend at no distant day. A word for the Antimony and Silver-Lead Mining Company. The mines possessed by this company not having been sufficiently paraded by way of paragraphs through your Journal, one of your correspondents, on the 16th inst., tells us very gravely, that "Messrs. Gray and Stephens have made some very important discoveries in the neighbourhood of the Antimony and Silver-Lead Mines, from which they have realised, it is stated, upwards of 10,000l. within the last fortnight. The mine consists of copper and lead, which has been purchased by some parties at Manchester." Now, Sir, it is pretty clear what was the object of your correspondent in conveying this fact?—It was to bolster up the Antimony and Silver-Lead Mines. Let me then state the matter as it really stands. In the first place, the mine referred to, that of Penhale, is not in the immediate neighbourhood, or contiguity, of the Antimony and Silver-Lead, although it may possibly be in the

same parish, or county; the discovery referred to, and which certainly promises well, was made some six months since; the reports have, I think, appeared in your columns; no ore has been yet sold, although I understand there is a small parcel sampled; but, I believe, the two gentlemen named have realised something, but far below the sum stated. That this interesting little paragraph, however, should have its full effect, I find in your paper of last week, that your correspondent, with reference to this same Antimony and Silver-Lead Mine, observes—"The general opinion respecting this mine is, that if effectually worked, and a 30-inch cylinder erected, which would be sufficient to prove the mine to a considerable depth, she would turn out a first-rate lead mine;" from which I am led to infer, that no efficient working is going on, nor has an engine been purchased, which, I presume, is the first consideration. It was my intention to have offered some further remarks on other instances of a like nature, but fear I shall carry my letter to too great a length; but with your permission, however, I will return to the subject on a future occasion.—A SMALL ADVERTISER: London, Sept. 28.

EAST OF SCOTLAND MALLEABLE IRON COMPANY.

A letter to the shareholders of this company, on its present state and prospects, has just been published, in Glasgow, by one of that body, in which he recommends, from the present unpromising state of the iron trade, an immediate suspension of the works, to sell the entire property as soon as a purchaser, at a remunerative price, can be found, pay off the liabilities, and divide the balance, *pro rata*, among the shareholders. After a general view of the nature of joint-stock companies, and the advisability of dissolving when the holders find their capital uselessly locked up, from a general depression of business, he states, that the circumstances in which the company was formed were extremely different to those in which it is now placed. Trade generally, the iron trade in particular, was then highly prosperous, capital abundant, and confidence firmly established; that every branch of trade—none more remarkably than the manufacture of iron—is now deeply depressed; confidence is almost unknown, and capital has been destroyed to an extent almost incredible.

This company was directly the offspring of the speculative spirit which was, three years ago, so largely developed in the projection of railway companies. There was not an element of prosperity in their case which did not exist as hopefully in this. The public estimation of these undertakings, and what it has now become, is very different. The prospectus of the company was dated Sept. 11, 1846. The stock was first dealt in on the Glasgow Stock Exchange, on Jan. 9, 1847; and the following are the prices of several leading railway and other stocks at these dates, and on the 9th of the present month:—

Name of Stock.	Sept. 11, 1846.	Jan. 9, 1847.	Sept. 9, 1848.
Aberdeen Railway	£4 15 0 dis.	£20 7 6 pm.	£30 5 0 dis.
Caledonian	3 15 0 pm.	0 17 6 "	29 10 0 "
Clydesdale Junction (guar.)	13 0 0 "	14 10 0 "	7 0 0 pm.
Dundee and Arbroath (g. 8 per ct.)	12 0 0 "	20 0 0 "	9 0 0 "
Dundee and Perth (guar. 8 per ct.)	5 7 6 "	8 5 0 "	par.
North British	7 12 6 "	8 4 0 "	6 2 6 dis.
Edinburgh and Glasgow (30l.)	23 0 0 "	29 10 0 "	8 10 0 "
Edinburgh and Northern	0 5 0 "	3 0 0 "	9 10 0 "
Glasgow General Terminus	6 12 6 "	10 7 6 "	3 0 0 "
Glasgow Barrh. & Neilston (guar.)	18 0 0 "	15 0 0 "	5 0 0 dis.
Glasgow, Kilmarnock, and Ayr (50l.)	27 10 0 "	20 0 0 "	20 5 0 "
Glasgow, Dumfries, and Carlisle	0 14 0 dis.	1 12 0 "	2 16 8 "
London and North-Western	103 0 0 pm.	96 0 0 "	13 0 0 pm.
Midland	42 0 0 "	30 0 0 "	14 0 0 dis.
Eastern Counties	18 0 0 "	11 10 0 "	5 0 0 "
Scott. Central (guar. 7 per cent.)	6 17 6 "	6 12 6 "	2 16 0 "
South-Eastern and Dover	9 17 6 "	6 0 0 "	10 0 0 "
York and Newcastle	18 0 0 "	13 10 0 "	2 10 0 pm.
Glasgow Commercial Exchange Co.	1 6 0 "	2 0 0 "	0 4 0 dis.
Forth and Clyde Canal	27 0 0 "	32 0 0 "	5 0 0 "
Bank of Scotland	71 0 0 "	76 0 0 "	63 10 0 pm.
Clydesdale Bank	3 7 6 "	3 7 6 "	2 5 0 "
Royal Bank	60 0 0 "	57 0 0 "	18 10 0 "
Union Bank	42 10 0 "	41 5 0 "	29 0 0 "
Western Bank	34 10 0 "	34 5 0 "	18 10 0 "
Glasgow Gas Company	24 0 0 "	20 0 0 "	3 17 6 "
Glasgow City and Suburb. Gas Co.	5 0 0 "	4 7 6 "	0 5 0 "
East of Scotland Mal. Iron Co.	0 0 0 "	0 5 0 "	3 6 0 dis.
West of Scotland Mal. Iron Co.	0 0 0 "	14 0 0 "	150 0 0 "

He here observes—"It cannot be necessary to add a single word to the lesson these figures teach. As a proof of the change which has come over the country, nothing could be more striking or conclusive."

The writer then proceeds to draw a comparison between joint-stock companies and private firms, as to their capabilities of successfully carrying on a hazardous business; and states that there are no means of eliciting and concentrating, on a given point, the skill, knowledge, and enterprise of the various shareholders, as is done with such striking success in private partnerships. It is even worse than a business managed by a private individual; as, let the general hired manager be a man of the highest skill, probity, and activity, he cannot feel and labour for a body of strangers as he would feel and labour for his own fire-side.

He then contends, that the holders of the shares are not in a position to pay up the calls necessary for raising the capital required for carrying on the works, and that they never could compete with their neighbours by working on credit. But he further shows that it is a matter of positive certainty, that if the shares were at a premium, and their owners full, they could not manufacture bar-iron at this moment, except at a heavy loss on every ton, and considers it insanity to push on in a course, every step of which is a step to ruin. A manufacturing work, in the hands of a joint-stock company, is a totally different thing to the same work in the hands of a private firm; it may ruin the former, and enrich the latter. The iron establishment in question possesses many advantages which skill and capital, united to the sleepless vigilance, solicitude, and untiring energy of individual enterprise, could, undoubtedly, turn to good account. The country will recover, though, perhaps, slowly, from its present prostration; and the writer hopes, by suspending the works, and keeping everything in as good preservation as possible, as soon as trade is again active, the prospect of getting into business at once, and on favourable terms, will bring the company a suitable purchaser.

NEW BRITISH IRON COMPANY.—PRESENTATION OF PLATE.—Yesterday week the workmen at the Brierley Hill Works of this company invited to a public dinner the managers, Messrs. J. and E. Talbot, to express their attachment to them both, their regret at their leaving the works, and to present the younger with a testimony of their esteem.—After the removal of the cloth, the CHAIRMAN introduced the subject to the meeting, and after passing a just eulogium on Mr. Joseph Talbot, stated, that with reference to Mr. E. Talbot, he had to perform a highly gratifying task—that of presenting to him, as a small mark of their esteem, a silver inkstand and candelabrum.—Mr. E. TALBOT, in acknowledging the gift, said—"There is a combination of circumstances which gives to it a degree of pleasure and pain—of pleasure, because you have thought me worthy of such a token of your regard; and of pain, because the bond of union, which has so long subsisted between us, is about to be severed. I will not now enter into detail—suffice it to say, however, that to-morrow dissolves our connection with the British Iron Company, a connection spreading over a period of 14 years, 11 of which have been spent among yourselves; and apart from circumstances which have sometimes arisen owing mainly to the peculiar constitution of joint-stock companies, and over which we have had no control, I think I may say there are but few instances of the kind, wherein a better state of feeling has been maintained, or a better understanding arrived at—while a strict enforcement of duty has been observed—than between you and ourselves. Reflecting, therefore, upon the past, we have not, I think, much to trouble us on this point, in fact, the proceedings of this evening bear an honourable testimony on your part. As to the truth of this, and while I look upon the object before me, and esteem it for its value, still, I lose sight of it, and trace in its origin the development of a kind, sincere, and warm-hearted feeling. This it is which I most appreciate, and I trust that in years to come, should my life be spared, it will ever serve as a memento of your kindness. Believe me, I shall continue to feel an interest in your welfare; and I shall at all times be glad to render you what assistance I can whenever you may require it. I think you will give me credit for sincerity when I say, I hope your future days will be many, prosperous, and very happy, and that your future prospects will be more satisfactory than the past."—The usual toasts having been drunk, and the evening passed in the utmost hilarity, the parties separated. The plate, which was finished in a superior style of workmanship, was from the establishment of Mr. Stringer, silversmith, of Stourbridge.

IRISH MARBLE.—We have, on a former occasion, been called upon to record the importation of some blocks of marble from Ireland, the production of the county Galway, on account of the peculiar interest attaching to the supply of marble from the sister country. The importations of the article have not since been continued, but a vessel named the *Victoria*, has now arrived in the river from Galway, having 88 tons weight of marble on board, the produce of the county. The importation is of very considerable interest, both on account of its announcing the resumption of the supply, and the district from which the arrival takes place. The same vessel had also on board 60 tons weight of another description of stone, of Irish production, which is also an importation of some interest.

DAIRMELINGTON IRON-WORKS.—These works, belonging to the Messrs. Houldsworth, Glasgow, were blown in for the first time on Monday week, and the first casting took place on Wednesday. The machinery was found to work smoothly, and everything went off well. Ayrshire is now nearly girdled round with iron-works; and should trade improve, many more will be set going, as minerals and coals are found in abundance in almost every corner of the county. An English company has been exploring the hills around Dairmelington for the last few weeks, and have found lead, black-band ironstone, &c., in great abundance.—*Glasgow Herald*.

PROSPECTS OF BRITISH MINING AND METALLURGY.

(Continued from last week's Mining Journal.)

It is not easy for a stranger, unacquainted with the details of German Government, to form an idea of the difficulties which in that country have everywhere impeded the progress of trade. We have all heard of the tariffs of import duties, which have been considered by some as sufficiently liberal, and by others as hostile in the extreme to commercial movements. Few, however, even of our Government, and free-trading missionaries, have gone deeper into the subject. Neither Dr. Bowring, Mr. McGregor, nor Mr. Laing, talk of the local imposts and their effect on trade, always excepting the Sound dues and the toll levied at Stade, which, being enforced against British vessels, were matters of notoriety to merchants. But that the immense continental traffic opened by such splendid rivers as the Rhine, the Elbe, and the Weser, were practically shut up by the tolls exacted on the rivers, no one has proclaimed. Now, there are commissions formed of diplomatic agents, which are in permanence for the regulation of these rivers, whose navigation was guaranteed as free to all Europe by the treaty of Vienna. At the Congress of Mayence for the Rhine, France and Holland have deputies. The Elbe Congress, being in few hands, has had little difficulty from foreign opposition; and the tolls along the whole length of the river were fixed, some years back, in the most amicable manner possible, at 3l. per ton, or about the cost of freight to the East Indies. On the Rhine, the representations of commercial men, and the rivalry subsisting between the different riverine states, caused some recent modifications of the toll, which now varies, according to the goods charged, from 10s. to 3l. per ton. To this has to be added corporation dues, in most of the great cities, over and above all the cost of portage, &c. When the freight, however low, is added to these tolls, it will be easy to imagine that less than a prospect of 100 per cent. profit on most articles of bulk, will not allow them to be sent into the interior. In fact, a land-carriage traffic was fully organised before the railway was started from Vienna to Hamburg, which carried off all the traffic from the Elbe. The railways formed the first breach in this absurd system; but so little is the necessity for low rates of transport understood in those parts, that the most exorbitant charges were demanded and obtained—the public having no alternative—the resource of the streams being closed against them. The cost of carriage of goods along the Great Northern line is at present 1½d. per ton per mile for the lowest description of goods, rising in four gradations to 2½d.; and, in the case of goods specially forwarded without delay, to 10d. and 1s. per ton per mile. At the lowest rate, iron, forwarded from Hamburg to Berlin, pays, in carriage, above the lowest rate common in England, 7s. 6d. per ton—forming, for pig-iron, an addition to the cost of fully 24 per cent., and on bar-iron of 8½ to 9 per cent., above the ordinary price and charge of carriage. If the iron were sent on another 100 miles, the increased charge made 4s. 2d. per ton. The charges are proportionately heavy on all kinds of goods—the lighter sorts being taxed at higher rates, and amongst these steel and machinery.

The classification of goods forwarded by rail corresponds with a classification of the river tolls adopted by the Government, and which gives them the power of enforcing a silent differential duty on foreign products, through the medium of these river tolls. Goods of home production are, to a great extent, exempted from the river toll, which is left in full weight upon the shoulders of the foreign producer and of the merchant. Upon the Rhine, Prussia has used this arm in favour of the sugar refiners of Cologne, to the prejudice of all the refiners in other states along that river's banks, by remitting its part of the toll upon raw sugar discharged in Prussian ports, and enforcing it on all carried up to the interior of Germany, or to France.* In the same manner, a formal treaty of commerce has within three years been concluded between Holland and France, by which colonial produce (Dutch) carried up the Rhine in Dutch bottoms, is exempted from the Dutch share of the toll—the exemption, of course, acting as a differential duty against all other colonial produce. The Austrian Government has had no opportunity of following this example, the great navigable rivers of that empire (excepting the Elbe) are not shared for the purpose of transport with other states; but minute and tormenting formalities annoy the trader, and entail great inconvenience and expense. If the London tradesman is likely to be surprised at our exposure of a state of things which he can correctly picture to himself, by supposing every collier, barge, and merchantman, obliged to lay to at Gravesend, for the purpose of showing papers, and paying toll to a Queen's officer; the Manchester manufacturer will be no less surprised, to hear that in Austria his yarn and twist are sent about with a permit, like that in use with us in transporting duty-paid wine and spirits. We believe that the taking stock, and enforcing an account of all yarn imported and manufactured, which was the practice a few years back, was recently relaxed; still cotton yarn is under surveillance, and is as dangerous an article for the dealer in Austria in its shape of simple thread, as if it had passed through Prof. Schönbein's process. At what rate weavers and printers can, under the pressure of these formalities afford to supply the millions depending upon them for clothing, may well be imagined. Nor will it be difficult to carry the calculation far enough to enable us to guess what extent of market will be opened, when these practices are abolished. Let us transfer the account to machinery and hardware, and we shall find that the market (now practically closed) for them is not less extensive, nor less worth recovering.

It must be remembered, that all these impediments to trade occur in nations, who, by long wars, were rendered timid in accumulating circulating capital. The march of an invading army, or the prolonged quartering of native troops in any particular district, exposed the owner of buildings to have men billeted upon him, whom he had to feed, if flocks and herds abounded. In the same manner innumerable French regiments, German regiments, and Russian regiments, were clothed from the stores of merchants in all the large towns of central Europe, during the last war. Industry had, for centuries, by this species of pillage, been forced into agriculture, under circumstances that could not remunerate the cultivator; and when the circumstances seemed to favour his attempting other occupations, the impediments we have described met and checked his efforts. The opening of our ports to the agricultural produce of our continental labourers, will induce them to indulge in the propensity (which is natural, when the soil is good and the climate favourable) to push the cultivation of their fields to the utmost; but to draw the full value from their efforts, the goods with which this produce must be paid for should have every facility of access to their markets. We think the subject is one particularly deserving of the attention of the Government, at a period when the internal management of all German states is matter of public discussion, with a view to improvement, and trust it will be so considered, before decrees are finally passed. The recent advance in the tariff of the Zollverein has clearly been a diplomatic coup, which caught our representatives "napping," both at Leipzig and Berlin; and, notwithstanding all protests, it will not now be easy to undo what has been done. The river tolls are felt to be an annoyance to the inhabitants themselves, and a representation against them would be supported by public opinion in Germany. The river tolls in the Teutonic states ought to go as the labour rents went in the Slavonic states, under the exclamations of the people. There is, probably, no more effectual means of recalling the minds of many of our continental neighbours from wild political speculations, than by holding out to them a new field of gain. Nor can any more legitimate ground of remonstrance be taken by a foreign power, than that of protesting against commercial impediments, which, it is easy to show, injure both parties. The best kind of mediation is that which brings buyer and seller together; this is, moreover, the ground which England has an undisputed right to take. The occupation of Cracow was a wanton violation of the treaty of Vienna, which has never been recognised (and very properly) by this country. Since new difficulties have been laid in the way of access to Leipzig, the city of Cracow ought to be our especial mart in central Europe. It would be better for the men of Birmingham to be employed in furnishing tools and harness to the Polish farmers, than to be exporting muskets to "Mobiles" and "National Guards."

Another motive for coveting the possession of Cracow bears specially upon mining interests; the territory of the little republic is curiously rich in zinc ore. This is the only metal which is not found in abundance in the other provinces of the Austrian empire—at least, no great discovery of calamine has been made; and the impediments to trade, imposed by the financial measures, and by police restrictions, prevented strangers who knew how to treat the zinc blende from settling and establishing works. A large factory, for working up zinc in a great variety of shapes, has, however, been, for some years past, in activity in one of the suburbs of

Vienna, and it was deemed desirable to supply it from internal sources. It is, however, scarcely necessary to say, that the metal is, in this manner, only supplied at a great advance on the prices of Belgium, and even of Prussia.

(To be continued in next week's Journal.)

MULTITUBULAR DUCTS, FOR INSULATING ELECTRIC TELEGRAPH WIRES.

We have, on a former occasion, noticed the several inventions and improvements of Mr. Francis Whishaw, relative to various descriptions of telegraphs, hydraulic, acoustic, &c.; and we have lately inspected some tubes, patented by the same gentleman, for the purpose of carrying the wires of electric telegraphs, preserving them free from injury, or corrosion by the atmosphere, and keeping the insulation perfect. They are constructed of the best Derbyshire and Staffordshire clays, their external form being rectangular, in lengths of 3 ft., containing three, six, or any number of cylindrical apertures throughout their length, perfectly as distinct as so many separate tubes, and greatly economising material and labour in laying or fixing, and keeping the wire compact and secure. The wires being drawn through the respective orifices, the length of pipe is jointed to the one previously laid; the dimension of a section of a tube, with six half-inch bores, is about 2½ inches by 2 inches. Two or three wires can, if so required, be laid in one orifice, Mr. Whishaw having several plans for encasing them in a non-conducting covering, each wire being perfectly insulated, yet of a size sufficiently small to pass through an orifice of this diameter. The method adopted for joining these tubes is admirable; it is very simple, yet forms a joint, invisible, but perfectly air and water tight. A channel, about a quarter of an inch broad, is formed round the interior surface of the socket end of the pipes, and another, to correspond, round the small end, on the outer surface, so that, when inserted into the socket, the two channels meet, and form, as it were, one; there is an opening from the outside of the socket end, through which a very tenacious cement is poured, in a liquid state, filling the channel, and which, when set, forms an internal collar, and renders any length of tubes as firm and rigid as if in one piece only. Mr. Whishaw informs us he is making considerable progress with his *Telephonon*, or speaking telegraph, it being now in use in many large establishments, and is peculiarly well adapted for dockyards, ships, large hotels, noisy factories, &c. It consists of gutta percha or other tubing, of any required diameter, from a ½ in. upwards, having, at the terminations, whistles, or reeds, and mouthpieces, of ivory, bone, horn, or hard wood. Attention is first called by a whistle, or other sound, when the latter can be removed, a mouthpiece adopted, and a conversation kept up, with facility, to a distance of ½ of a mile. He has another description of tube, of gutta percha, secured by a hempen mixed fabric, for sub-aquatic purposes, by which a correspondence can be kept up across broad rivers or channels. In his endeavours to simplify the several modes of telegraphic communication, Mr. Whishaw is greatly extending his "two-letter code," by four alphabets of differently formed letters; by this arrangement, spelling is almost unnecessary, and the practice learned in a few hours; he has already perfected 10,000 changes, which can be read off at a glance. We described the principle of this code in the *Mining Journal* of June 24th. Great credit is due to this gentleman for his continued perseverance in bringing as near perfection as possible these several highly interesting methods of communication.

ELECTRO-MOTIVE POWER, ON THE PRINCIPLE OF MUSCULAR ACTION.

At a late meeting of the Medico-Chirurgical Society of Aberdeen, a paper was read by W. FRASER, Esq., M.R.C.S.E., on the above subject, in which he stated that, having seen a number of electro-motive machines of various constructions, he was much struck by the extremely weak power rendered available, compared with the force actually exerted under certain circumstances. An electro-magnet, which would, within its proper sphere of power, attract to itself, and retain suspended, a weight of many tons, could not be made, by any of the arrangements he saw, to perform the twentieth part of the labour of one horse. An idea having been suggested from the mode in which muscular force appears to be exerted in the human body, he constructed a magnetic battery arrangement, on an entirely new principle, taking the muscular and nervous systems as his guides. It is generally believed that the contraction of the muscles is produced by mutual attraction of minute globules, arranged in parallel lines, of which the muscular tissue consists. The stimulus which excites this attraction is the nervous, or bio-galvanic, current, transmitted by the nerves, and brought to bear on the muscular globules, by means of nervous filaments, which interlace among them, and form a network of anastomoses, completing the circle, or current, of nervous influence, of which the fountain, or prime mover, is the brain, or spinal marrow; the aggregate of these minute movements giving the extent of contraction of the entire muscle. In imitation of this arrangement, Mr. Fraser proposes, for an electro-motive machine, a number of electro-magnets, opposed endwise to each other, arranged in parallel lines, and connected together by fastenings, in such manner that, when they act simultaneously, their united force can be brought to bear on one point. In the one he constructed, he placed 8 rectangular pieces of soft iron, 1½ in. long by ½ in. square each, endways, at the distance of ½ in. from each other; these pieces were armed with a continuous covered copper wire, and connected together in such way as to admit of free motion within a limited extent. Each piece had covered wire, ½ in. thick, wrapped round it closely and regularly, in three layers, and, before being carried to the next piece, or magnet, the wire is extended out for about 1½ in., at right angles, and bent back again at an acute angle—thus almost entirely overcoming the resistance it offers to the motion of the magnets. They were then connected by ligaments of catgut, which could be regulated so as to assign any distance necessary to limit the motion of the magnets, which were all bound by two bands of vulcanised Indian rubber, sufficiently on the stretch to overcome the weight, which, when hanging perpendicular, one part of the apparatus would bear upon the other. This arrangement has the advantage that, as the same current of galvanism is equally efficient in rendering many prisms magnetic as one, and the motions being communicated, and all accumulated at the end of the series, the amount of power gained is just the attractive power of one prism multiplied by the number in the series, deducting the resistance to be overcome.

The apparatus thus described by Mr. Fraser lifted, with the aid of a moderate battery, 1½ lbs. a distance of nearly half-an-inch. He describes the action as almost instantaneous, and the shock with which it becomes rigid, or relaxed, as very much resembling the spasmodic action of a muscle. Supposing one magnet capable of raising 3 lbs. ½ in., by combining 96 of them into one chain, or series, there would be a power of raising 3 lbs. 8 in. high attained; but, allowing the additional magnets and their appendages to weigh 1 lb., and provided with no counterbalance, the actual power obtained would be 2 lbs. raised 8 in. But, by combining 100 such columns, a power would be gained of raising 200 lbs. 8 in., or 100 lbs. 16 in., 50 lbs. 32 in., &c., according to the arrangement of the combination.

THE GALVANISED IRON COMPANY.

From a remodelled circular of this company, now before us, containing testimonials from shipowners of its value as a metal for sheathing ships, we find that it is daily gaining ground in the confidence of nautical men. From these reports, it appears that, after voyages to South Africa, Patagonia, Quebec, Callao, &c., the several vessels have returned perfectly clean, and requiring the most trifling repairs, they being nearly confined to places where the sheathing had been rubbed off by actual abrasion. This will prove a most important point of economy in ship-building. In the rigging of vessels, also, as well as works on shore, the use of materials made of galvanised, instead of plain, iron is largely extending, such as block-sheaves, thimbles, nails, bolts, and other ship-fastenings. There are now, in the merchant navy, steamers and Royal Yacht squadron, 54 vessels of several descriptions, using variously, in hull and rigging, galvanised iron; 24 in the Royal Thames Yacht Club; upwards of 30 have been sheathed with it, and everywhere has it given most complete satisfaction. In roofing it is also making great progress, its capabilities having been well tested at the new Houses of Parliament, the enormous roofs of the shipbuilding-sheds in the several dockyards at Deptford, Woolwich, Chatham, Portsmouth, and numerous railway stations.

EXTENSIVE CONTRACT OF IRON PIPES FOR LIVERPOOL.—We are glad to learn that the extensive contract for water-pipes for the town of Liverpool has been secured by the founders of this city: 80,000 tons of pipes will, we understand, be required. This contract is taken up by four firms, and will amount to about 150,000l.—*Citizen*.

Original Correspondence.

COPPER SHEATHING.—No. VI.

SIR,—“GERMANICUS” will find the analyses of the Norway copper block in the *Rapport Annuel sur les Progres de la Chemie*, 1848, p. 64; quoted from the *Journ. für Prakt. Chemie*, No. xxxvii., where more details are given. These books may be had (or seen) by application to Mr. Nutt, foreign bookseller, 152, Fleet-street, London. But I think it does not say whether the block was from Alten or Drontheim. Tin was certainly as little expected there by me as by “Germanicus”; nor do I think it is at all mentioned by Von Buch, as present in Norwegian geology. We shall see what Mr. Stromeyer makes of it.

The per centage of 92 for Norway copper is a low figure; and it may be doubted whether 8 per cent. of iron can be combined with copper.

With respect to the different waters, “Germanicus” may see what was done by me, by referring to the *Athenæum* for 1841, *Report of the British Association*; and it may forward the present discussion, if the article is reprinted in your columns; although premature and hastily drawn up, because a paper was required from me, and this subject preferred. What I have done since is not yet arranged and digested from the note-book; being still incomplete and inconsistent.

Of the best alloy for sheathing, I have little or no doubt, if we had pure copper to mix it with, and if we could ensure constant uniformity of mixture: but the previous question is, what is drawn out from, or left in, the copper, different from the more durable make of former times; and whether we cannot still produce such copper, without the cost and uncertainty of alloying? If, by due modifications in the course of operations, we can slag out what is injurious, and retain what is wanted for our purpose, it will be a great improvement upon leaving in 2 or 3 per cent. of what we know not what, and adding again what we may perhaps have slagged off: its practicability in the case of sheathing, at least, must be inferred from the pretty general opinion of the superiority of old sheathing.

With this view it is important to learn the specific effects of each successive step of the process; namely what particular metals and other contaminations are (chiefly) thrown off by each operation; and hence how to modify the respective operations, so as to retain or reject such alloys, as suit our purposes whether sheathing or other.

For example:—If a mixture of British ores contains, besides copper and iron, arsenic, zinc, lead, tin, tungsten, and manganese; and the addition of foreign brings in antimony, nickel, and molybdenum, all in appreciable quantities (besides insignificant proportions of several other metals), the ore calcination will get rid of most of the arsenic and some antimony; and the subsequent fusion slag off iron, tin, lead, manganese, and tungsten, with a little zinc.

Intermittent calcination, as practised in Germany, causing the atmospheric air and moisture to penetrate the mass, seems to produce an acid reaction in the cold, and renders the calcined matter porous and tender; so that the metals separate more freely in fusion.

But in the after calcination of the regule, what is known of the order in which the alloying metals chiefly come out? Has this been investigated by analyses, or even inferred by examination of the slags? It is important to be clearly understood, if advantage is to be taken of modifying or adapting these operations to our purpose; and the specific changes which take place in the roasting-furnace, perhaps still more so. The very interesting separation, too, of the “hard metal” from the purple regule, is another case; which if precisely understood, in connection with the others, might probably be turned to economical account.

Will “A ROASTER-MAN” give us his opinion on these points; especially on the order in which the alloying metals (are supposed to) come out in the successive operations? on which I may then have further observations to offer in a future letter.—J. PRIDEAUX

THE LEAD TRADE AND LEAD MINES.

SIR,—In my letter, inserted in your *Journal* of Sept. 23d, the words—“it becomes so overloaded,” should have been, “they become so overloaded.” My observations as to the waste of the shareholders' money by public companies, which enter into economical and trading competition with private companies, are supported by a case in point—the *expansé* of the maladministration of the Blaenavon Company, in your *Journal* of the same date. In recommending British copper and lead mines as fit objects of associated speculation, because the difficulties attending them place them out of the reach of private competition, it is to be observed, that these difficulties are the varieties of Nature, and the prizes in the lottery can not be withheld from the persevering and enterprising shareholder. In the shares of a railway, or joint-stock bank, or a manufacturing company, the shareholder may be played against by designing directors, or dishonest agents, as a gambler is cheated by clogged dice. The copper market is at present a little overloaded by the import from foreign mines; but I am led to believe, that the capability of excessive production of lead does not exist; and that, in the spring, when usury and the sword shall have finished their work in Europe, and peace and commerce shall be restored, an extraordinary demand for that metal will take place. The Health of Towns Bill must add to the consumption of lead. The cities of Europe, delapidated by revolution, must be repaired. The plumber, the glazier, and the painter, must then throw aside the musket, and take up their tools. Free-trade in corn, will enable the English miner to work as cheaply as any other in the world; and labour is three-fourths the expense of a mine. For these reasons, I look for an early day of sunshine for British lead mines. A correspondent of yours (T. H. Leighton) recommends Pembrey Dock as a good place for copper smelting: he might have added, for lead smelting also. The coal of that neighbourhood, and the culm for lime-burning, and, in some instances, the limestone, would be return cargo to Cardiganshire, Montgomeryshire, and Ireland. ARGENT.

Sept. 25.

PURE IRON.

SIR,—I can only recommend Mr. Rogers, who seems so doubtful concerning the existence of *spongy iron*, to try the experiment himself, by taking a weighted portion of the reduced metal, and, by the ordinary method, convert it into pure peroxide, and weigh it: he will find, error of analysis taken into consideration, the amount of peroxide yielded by a given weight of the iron to be nearly theoretically correct, which could not be if the substance produced by the action of hydrogen on oxide of iron was an oxide; he will find 100 parts of the spongy iron to yield, by proper treatment, 142½ parts of pure peroxide. The reason of not welding it (the pure iron) in a forge fire is very evident—for, as soon as heated, in its finely divided state, it would ignite, and become oxidised; moreover, even if it did not, it would, by contact with the carbon of the fuel employed, absorb a certain amount of that element, and, as it were, defeat the intention of preparing a perfectly pure metal. JOHN MITCHELL.

Hawley-road, Kentish Town, Sept. 25.

IMPROVEMENTS IN THE ELECTRIC TELEGRAPH.

SIR,—During my recent experiments in electricity, I have made several improvements in the mode of communicating by telegraph, a description of which may prove useful to those engaged upon that work, and in which, though comparatively perfect, much still remains to be effected. The first improvement consists in the form of helix used to induce the deflection upon the magnetic bar. In the old helices, the power decreases in proportion as the force is removed laterally from the centre of suspension of the bar—first, from the inductive effects of the current having a tendency to move the bar around a centre, in a right line with its energy, and which, consequently, operates more feebly as it is further removed from the centre of suspension; and also the extremities of the bar, forming an arc during their deflection, are not always opposed to that portion of the coil presenting the greatest amount of inductive energy. To obviate these defects, the helices which I am using are constructed in such a manner that the current flows through in a direction at all times parallel to the major axis of the bar, and in a right line with the centre of suspension, thereby exposing the maximum effect of induction from the coil upon the magnet during the whole extent of its deflection. The form of magnet used is something in the shape of the letter S, and is mounted upon a slight disc of boxwood, or other substance, one or more, according to circumstances, and working in the form of coil above mentioned, in such manner as to give motion to a disc of talc on a dial. The disc has the advantage of equigitation on all sides, and requires a proportionate diminution of power to give the signal, independently of the great advantage arising from a more certain dead beat. The construction of the telegraph is such as to leave the disc independent, and free from the magnet and helix, avoiding thereby the many interruptions from contact, and other slight causes, and producing a signal more rapid and distinct than even my last

* The practice, as far as we are aware, was first exposed in Mr. Banfield's *Industry of the Rhine*, where the want of consular aid at many important points of the inland navigation of Europe, is stated to be disadvantageous to the trader—i.e., the English trader.

improvement of the diamond telegraph, described in a recent Number of the *Athenaeum* [see *Mining Journal*, June 10], and which is now in operation over the whole of the stations belonging to the Electric Telegraph Company.—N. J. HOLLIS: *Hampstead, Sept. 27.*

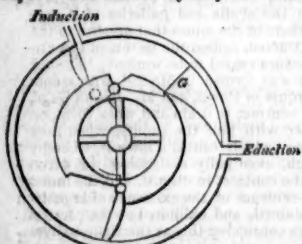
IMPROVEMENTS IN OBTAINING AND APPLYING MOTIVE-POWER

SIR,—I would willingly have devised a different heading for this communication—the first word of the above being most absurdly inapplicable; but, as it is the title of Mr. Weston's abstracts of his specification in your *Journal*, I suppose I must adhere to it. The communication from that gentleman in your columns of last week, would, from its *ex-parte* nature, and its tergiversation, really be unworthy notice, were it not that I have a word or two more to say upon the subject, and should have written you had it not appeared. I shall, therefore, first notice a few points in his letter, in which he would make it appear that I am an ignoramus, totally incapable of judging in the matter, and that I am some one in disguise, who has made use of dishonourable means to obtain his information. He first complains that I say, "the whole document is a mass of crude, complex, and inapplicable nonsense," and that I then acknowledged that I had seen only part of it; and had I been honest, I should have acknowledged I had only seen the abstracts, &c. Now, this is thorough quibble; he knows perfectly well that the above "whole" only applied to what I had seen—some two columns in your *Journal*; and does he mean to tell me, or your readers, that abstracts of patents, denuded of the legal verbiage with which they are surrounded, are not as easy to be understood as the original?—or has he sent you abstracts totally at variance with the specification itself? There was sufficient in them to show me the principle on which he was proceeding—even if they were not without drawings for illustration, "sufficient for scientific men." The antithesis, "much less himself," is only worthy my utter contempt. A labourer in the field of science and mechanism for 25 years, since arrival at manhood, and a successful patentee on several occasions, I have little to fear from such inuendoes, even with those who, with yourself, Mr. Editor, know who "Steam" is. Again, I did not say his invention for generating steam was the same as patented 10 or 11 years ago. I said the principle was the same, but that Mr. Weston's was much more complex in detail; and, although the former one was simple in operation, it could never be economically and successfully brought into use.

Mr. Weston appears to me to have a somewhat piratical idea of the definition of a patent, in attempting to justify an infringement, by comparing his mode of employing some other person's patented railway tube to "shooting the barrel away from the bullet, instead of the bullet out of the gun-barrel." I can assure Mr. Weston he is perfectly welcome to amuse himself with this kind of sport as long as he likes. Only let him find a barrel of his own; or, if his scientific wits cannot discover one which will perform such feat, I would advise him, were I the previous patentee, that if with his apparatus, he must use mine, let him honestly acknowledge it as mine, and pay me for the use of it. There is a considerable difference between compressed and rarefied air, and high and low-pressure steam; but in both the patents I alluded to, each of these elastic media can be employed; it is the form of the tube which is secured for propulsion by either of these means. He next very shrewdly begins to guess who I am, and, "in the event of the public being informed who and what I am, may think unfavourably of my character and conduct;" and he arrives at this half conclusion, because he cannot make out how I learned all about his employing Clarke and Varley's tube, consistently with my other statements. I will tell him; before I saw a single abstract of Mr. Weston's patent, a friend of mine (a considerable railroad iron manufacturer) being in town on business connected with a patent, had the whole described to him; and, on his return, knowing I took much interest in the success of the atmospheric principle, told it to me; and, when the abstracts appeared in your *Journal*, I particularly looked for that part; but could not find it. I, however, ventured on the observations I made; and, according to Mr. Weston's communication, it appears I was perfectly right.

Since my last communication, I have been in London, and made it my business to see that part of the specification and drawings relative to the rotary engine. As I stated, I had my doubts whether this would not turn out "equally original and valuable," so I find it. This principle of rotary engine has been tried over and over again. The first patent of Mr. Beale, of Greenwich, was on this principle; but it never could be got to work with regularity, or remain long steam-tight under the wear and tear. The hinge joints of the flap, or wing pistons, is the rock on which success with this description of engine must always be wrecked, let Mr. Weston, or any one else, modify the working details how they will. I have had a wood-cut made from one of these engines, described by Nicholson, in a Number of the *Operative Mechanic and British Machinist*, of about 1825, which I send you for insertion, and in which Mr. Weston will see the counterpart of his own. The steam-stop, G, is not quite the same—Mr. W. working his on the eccentric principle, which is still more objectionable; but that is not material. I have altogether, I think, shown sufficient to prove that there is nothing original about Mr. Weston; and although it may be very pretty amusement, and highly gratifying to make a small new engine of this description spin round "to a fearful degree," with the steam-engine boiler of a large iron factory—perhaps, equal to a 200-horse power engine—it will, I expect, be found a different affair, should it be fixed with a proportionate boiler, and attempted to be kept at constant work. Should it, however, succeed in working economically, steadily, and with regularity, I will candidly allow Mr. Weston, although no engineer, to have done, with this kind of rotary engine, what many really scientific men have not been able to effect.

The annexed is the diagram referred to, and of which Mr. Nicholson says—"The steam-way may be considered to be a cylinder bent round;



and the fans, as they obtrude themselves, act the part of a piston, receiving the impulse of the steam always on one side, and effecting the condensation always on the other. It being requisite that the steam-way should have some termination, the obstacle, G, is indispensable, and the movement of the fans upon hinges, or some other mode to pass such obstacle, is unavoidable; therefore, from being thus compelled to move, the piece acting as a piston continually to and from its fittings it becomes extremely difficult to maintain in those fittings steam-tight. This, together with the steam-way not being capable of receiving the cylindrical form, are inconveniences of great moment. It has always been found, therefore, that in maintaining engines of this construction in a working condition, great difficulties arise, which hitherto have not been surmounted; and as at present these engines exist to no useful end, we shall refrain from describing them further."—STEAM: *Dudley, Sept. 27.*

IMPROVEMENTS IN OBTAINING AND APPLYING MOTIVE-POWER

RESPECTED FRIEND,—I do not know whether the plan, patented by J. Weston, for combining the atmospheric principle with the locomotive, forms the principal part of his railway inventions; but I am inclined to think, that if it does, he has not yet made much progress towards superseding the present system. I do not say that his inventions are impracticable, or that they display a want of ingenuity, but, at the same time, there is little to indicate the presence of a thorough knowledge of the various inventions which have been patented, for attaining the same end which he proposes, and which have never had the chance of a trial, and, probably, never will. To propel a heavy train at a high speed is rough work, and the present system, however defective it may be, is superior to the majority of the plans patented for superseding it; in fact, the greatest fault which can be found with the locomotive is its great weight, and the possibility of collisions taking place; but, being free from complexity, will not be easily thrown aside, unless by some plan, which can be proved to be infinitely safer, as well as economical. The invention of J. Weston presents no advantage over the present system in respect to collisions; if it possesses any advantage at all, it is solely in the economy of its working; but as he retains the locomotive almost in its present state, in addition to having a small vacuum pipe along the rails, with a vast number of pistons communicating with the vacuum pipe and with the tube, fastened to the axle of the locomotive, it may be asked, whether the economy would, in the end, be very considerable? It seems, that all that will be attained by this invention will be to save the steam after it has passed through the cylinders of the locomotive, and there is no doubt but that it can be saved by less expensive apparatus. Thus, if a vacuum can be maintained in the

propelling tube, the power derivable from it could be applied direct to the axle of the locomotive with one piston, furnished with cross-head and crank; but, then, this is hardly a new plan, or, at least, the engines of T. Craddock would possess the same advantages without being complicated. We must not lose sight of the fact, that the locomotive has been brought to great perfection during late years—that is, as far as regards speed; so that whatever change is required, it must be one which will render collisions an impossibility; and I would venture to predict, that if this change takes place, it will be by the adoption of the atmospheric system—that is, with a tube of a large diameter, without intermediate engines.

Liverpool, 9 mo. 25.

GAS FROM WATER.

SIR,—Having noticed, in your valuable columns, an abstract of a lecture, delivered by Dr. Ryan, on a patent obtained by Mr. Stephen White, for manufacturing carburetted hydrogen gas from resin and water, for the purposes of public and domestic illumination, I take the liberty of requesting space, to enable me to explain, that the combination of the gases from resin and water, for artificial lighting, is my invention. It is now more than three years since I got my first retorts, &c., cast, at much expense, exertion, perseverance, and danger from explosion; on one occasion particularly it nearly cost me my life. I first obtained a brilliant and pure gas from oil and water; when reading in Partington's *Encyclopædia* a description of a plan for obtaining gas from resin alone, it struck me it would prove a valuable substance for supplying the hydro-carbon to the hydrogen of the water. I tried the experiment, and the result was I obtained a still more brilliant and economical light. This was in August, 1846, when I exhibited it to Mr. J. Jackson, screw-bolt-maker, Shude Hill, Manchester, and to several other friends. I was not able to proceed in practically carrying out the invention for some months, when, in the summer of 1847, Mr. Jackson, Mr. Nelson, gas-fitter, Miller's-lane, Manchester, and a few others, assisted me to put up an apparatus at Mr. Jackson's works, Scotland-bridge, Manchester, and which may now be seen. I here produced a pure gas, giving a brilliant light, and free from any disagreeable smell. My apparatus is somewhat different from Mr. White's, who, in his specification, according to a former Number of your *Journal*, claims the use of "oil, fat, tar, or similar substances." A few months previously a Mr. Hillyard, or Hillary, specified the same, and, according to *Chambers's Journal*, August 15, 1846, p. 109, M. Jobard, so far back as 1833, claims the very same combination—"oil, tar, and other like products."

JOHN DE LA HAYE.

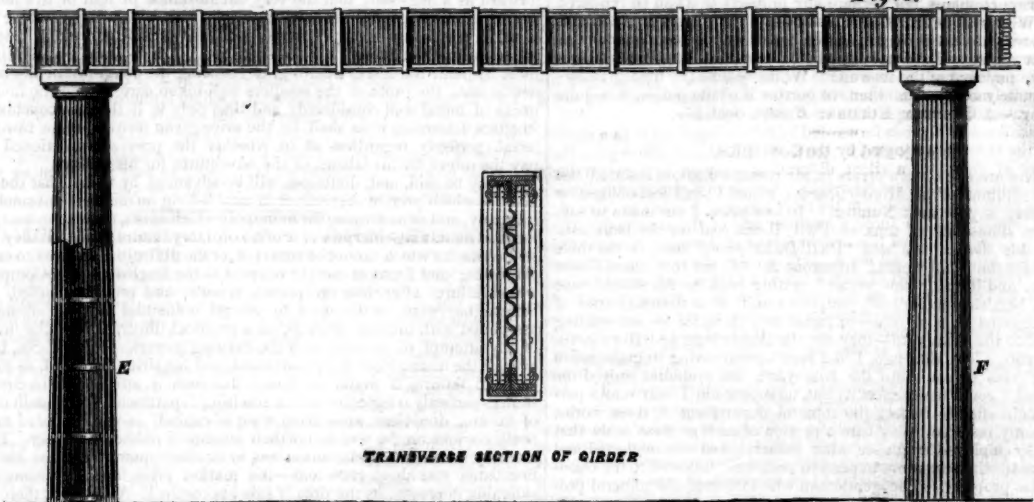
No mention is made of resin, which is a different substance; and I could state on oath, if required, that I never read, or heard, of resin being combined, or of any attempt being made to combine it with water, until I attempted, persevered, and accomplished it successfully. I have the most respectable and undeniable evidence in my favour; and, in defiance of all their specifications, I claim the priority of combining resin with water to produce carburetted hydrogen gas, for the purposes of artificial illumination.—JOHN NORTH: *Rochdale-road, Manchester, Sept. 27.*

RAILWAY SIGNALS.

SIR,—I take the liberty of forwarding, for insertion in your valuable paper, the particulars of a new plan of railway signals, possessing the following advantages:—It would enable the conductor, or passengers, of a railway train to communicate readily and instantaneously with the engineer. It would allow carriages to be taken from, or added to, a train with facility. It would be unaffected by the lengthening, or shortening, of the train, or by curves, or inclines. The following is the description:—Let a vertical iron spindle, with two horizontal arms, be placed at right angles to each other, fixed perpendicularly at each end of a railway carriage—one arm being near the top of the carriage, and the other just above the connecting chain. Let a cord, or iron wire, pass from the top arm through the inside of the carriages, close to the roof. The arm, at one end of the carriage, must be plain round—the arm at the other end must be flat, and turned down at the end, with a hole through the part turned down, for the round arm of another carriage to pass through. Thus, it will readily be seen, that if the arm at the end of the train be moved, the arm at the locomotive end would ring, or strike, a bell; a perpendicular lever would enable the conductor to work it. If it is a cord that passes through the carriages, by running it through loops in the top, any sharp pull would give the alarm; or if an iron rod is passed through the carriages, it may be worked by a cord being attached to the rod, and carried over a pulley, suspending the handles in the middle of the carriage.

The signals may be given as follows:—Passengers can never have any other object in ringing than for the train to be stopped. When a conductor rings, he may have different coloured flags, or lamps, to exhibit; or different signals may be indicated, by various numbers of blows with a hammer on a bell. The latter would be the best kind of alarm—the hammer to be furnished with a strong spring, to throw it back after it has struck.—HUMANITAS: *Sept. 27.*

IMPROVED IRON GIRDERS.



TRANSVERSE SECTION OF GIRDER



Fig. 2.



Fig. 4.

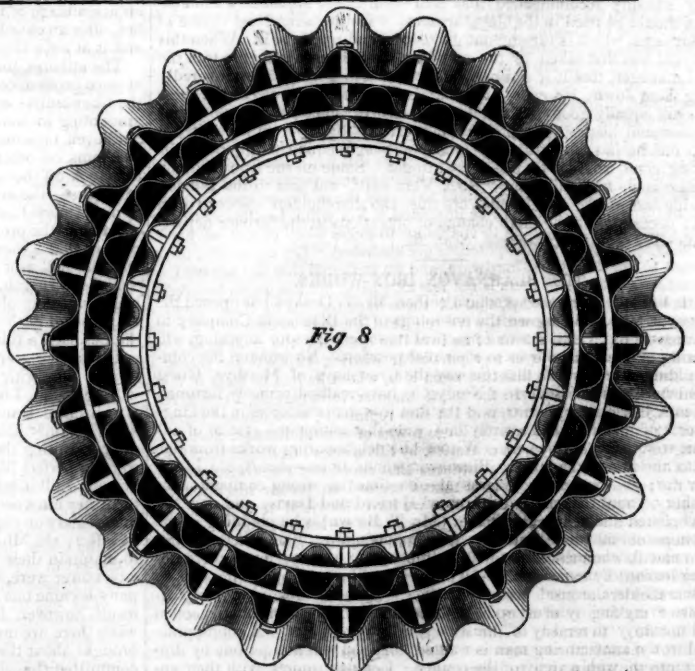


Fig. 8

[Specification of patent granted to John Henderson Porter, of Blackheath, in the county of Kent, engineer, for improvements in iron girders, beams, trusses, and supports, and in rendering the floors of buildings fire-proof by the use of iron.—Patent dated, 5th of March, 1848.]

This invention, which is one of very great importance to engineers, builders, &c., promises to give us strong iron girders, beams, &c., with the least possible amount of metal, and greatly diminished cost. It consists, first, in the application of what is called corrugated iron (whether the corrugations be in curved lines, or in angular lines, forming parts of cylinders, or tubes, and resisting compression in the direction of their length), to the formation of beams, girders, trusses, or supports, generally; and, secondly, in the particular application of the said corrugated iron (in which the corrugations are placed both vertically and horizontally), to the rendering of floors of buildings fire-proof, as hereinafter described.—First, with reference to beams, girders, and supports generally,

Fig. 1 shows a transverse section of the same, and similar letters are used to denote similar parts in these two figures. A denotes a plate of corrugated iron, with the caps, or frames, B, B, placed over its top, and under its bottom edge, and rivetted to it in two or three places, just to hold all together; while the bands, C, C, are shrunk upon them. The caps, or frames, B, B, are made of wrought angle iron; and the bands, C, C, are also of wrought-iron, driven on tight while hot—so that the shrinking, while cooling, may draw all the parts of the beam firmly together, and so form the beam; to complete which, rivets may be passed through the frames, B, B, and the bands, C, C, where it may be thought desirable. It is scarcely necessary to say, that such a beam becomes a beam-girder, truss, or support, according as it is used for one purpose or the other, in the construction of a building; and instead of the angle iron cap, or frame, B, B, I sometimes use a bar of wrought T iron; in which case two plates of corrugated iron are used, and, of course, the corrugated plates do not touch each other by the thickness of the T iron between them. An example of this is shown in section. The letters, D, D, representing the T iron. Fig. 5 is a side elevation of a girder constructed upon the patent principle, with the addition of a third thickness of corrugated iron, placed, as regards the line of corrugation, horizontally between the two vertical

plates, formerly described, and rivetted to them. At fig. 5 this is shown, supported upon two pillars, made also upon the principle of said invention, as shown in section at E, in elevation at F, and in plan at fig. 8; and such pillars may be made the supports of lighthouse lanterns, or of windmill-sails—thus forming the main body of the one or the other kind of building: chimney shafts, it is evident, may be made on the same principle. And now, secondly, with reference to fire-proof floors of buildings: two beams (such as are hereinbefore described) support a floor, upon and between which is an arching of corrugated iron, sustaining, by means of the blocking pieces, or bearers, horizontal plates of corrugated or other iron, which lie on the beams; corrugated iron is preferred for these horizontal plates, upon which may be laid the concrete, asphaltic, cement, or any other such like material, to form the even surface of the floor.

The thrust of the arch may be counteracted, where necessary, in large buildings, by wrought-iron tie-rods, of any convenient form. The drawing annexed to specification shows tie-rods, or bars, of flat iron a few inches above the springing of the arch, through which they are passed, and keyed up on both sides of the beams with the tie-bars of the adjoining arches; and it is to oppose a useful obstruction to the progress, or spread of fire, by the introduction of horizontal plates of corrugated, or other iron, at the bottom of the beams, as shown. These plates may be stiffened, by a bar of angle-iron laid across the corrugations, and rivetted to them, and may be supported by suspending bolts from the arch. Another curved rib, or beam, is shown, sustaining a level roadway, by means of corrugated plates, placed in the spandrills of the arch. The claim is made—first, for the application of corrugated iron (the corrugations resisting compression in the direction of their length); to the improving of the construction of iron girders, beams, trusses, and supports generally, as hereinbefore described; and, secondly, to improved application of corrugated iron, in manner hereinbefore set forth, in order to render the floors of buildings fire-proof: in both which applications, or improvements, great lightness of material is obtained, with proportional increased strength.

Patent-office and Designs Registry, 210, Strand, Sept. 31.

BREAKING OF PIT ROPES—PARLIAMENTARY INTERFERENCE.

SIR.—Within the last three weeks your paper has recorded no less than three breakages of pit ropes, every one of which has been attended with the loss of life, and yet each verdict has been "Accidental Death." Upon one occasion, Mr. Fourdrinier, the inventor of an apparatus for meeting this casualty, attended, as well as the agent at a neighbouring colliery, where it is in actual operation. Yet, instead of being tried upon its merits, it was discountenanced, as not so perfect as it might be. True, the jury appended to their verdict a serious recommendation that it should be adopted; yet how few persons read of, or attend to, those investigations, and how few will acknowledge their utility. Here, then, would be the effects of compulsory legislation, whereby each invention would be tested by properly qualified persons, and the use of them be enforced. The loss of life in pit shafts has long been a crying evil in the midland districts, but, until Parliament interferes, it must just go on. Fourdrinier's apparatus will stand the test of practice; and if, after the earnest recommendation of the jury at Hauley, it is not erected in Staffordshire, the owners ought to be held responsible for the consequences. D.

Newcastle-on-Tyne, Sept. 26.

BLAENAVON IRON AND COAL COMPANY.

SIR.—I observe, by your report of the proceedings at a late meeting of shareholders of the Blaenavon Iron and Coal Company, that a resolution was passed to the effect, that a sum of 20,000*l.* should be raised, on which 6 per cent. should be paid by way of interest, with the view of carrying on the concern for one year longer; while the committee, at the same time that they laud the conduct of the directors, declare that "a great error has been committed, by endeavouring to do too much with an inadequate capital (400,000*l.*)," and, moreover, that "after mature consideration, they found that a very considerable saving could be effected in almost every department of the works." How the committee will reconcile these opposite statements, I am at a loss to guess. I, for one, do not object making a further advance of 2*l.* 10*s.* per share, but I maintain that holding out the boon, or promise, of interest at 6 per cent. per annum, is a deception we practise on ourselves in the first instance, and on the public in the end, upon the disposal, or transfer, of our shares. I remember, that some years ago a company, which shall be nameless, but which has, unfortunately, acquired no enviable notoriety, after raising capital to the full extent in their power, issued debentures and preference shares—the latter, I believe, being entitled to interest of 7*½* per cent. per annum. The result, however, is that the concern has become bankrupt, not even possessing sufficient assets to meet the advances made by the Bank of England; there are no funds wherewith to meet the demands for interest of these preference shares, nor is there any property that can be rendered available. What will be the issue I cannot say, but merely mention this as one case, which should be considered when we are recommended to pursue a like course. The simple question I would ask is, where is the security for the payment of the interest? While we lend the money to ourselves, it is of no moment, but when we borrow it of the public, it is quite another thing.—A COUNTRY HOLDER: Bristol, Sept. 27.

BLAENAVON IRON-WORKS.

SIR.—There are one or two errors in my communication, inserted last week in the columns of the *Mining Journal*, which I shall feel obliged by your correcting in your next Number. In one place, I am made to say, "I have seen thousands of tons of Pwll Tacka coal on the bank condemned"—this should have been "Pwll Tacka mine;" and, in the table of expenses for the "old works," ironstone 2*s.* 6*d.* per ton, should have been 3*s.* 6*d.*; and in the "new works," getting coal, 3*s.* 2*d.* should have been 3*s.* I beg leave to forward you the result of a thorough trial of one of the rejected veins of coal—or rather two veins, for we are sending them mixed to the coke-works—they are the Boddellong and Horn coals. For some years, a long time ago, I had been endeavouring to get some of the cheaper veins of coal into the coke-works, but prejudice proved too powerful, and I could never effect it; but, no sooner did I hear that a person was sought after to inspect the mineral department of these works, than I instantly resolved to lay bare a portion of each of these coals, that the person so employed might see what valuable coal was neglected and left unworked; while the more expensive ones were followed to the boundaries of the property. The gentleman who inspected the mineral property strongly recommended that coal from these apparently valuable veins should be tried in the blast-furnaces; it is now being tried in one of the furnaces, which is turning out good iron, and plenty of it. When this new coal was first taken to the coke-works, the furnace manager told the head manager, that if it was used in the furnaces it would most assuredly bring them down; but every impartial person is now convinced that these coals are equally good with the more expensive; and thus, after 60 years' rejection and neglect, the present manager is obliged, from necessity, to use a fuel he has hitherto condemned, although equal to any other for making good iron, and a cheap coal to get. Some of the iron made by the new coal, now called the "Rock Vein coal," was sent to the London meeting last week; and I hope, ere this, the shareholders' eyes are open to the necessity of a thorough change of operations in the furnace department.—T. DEAKIN: Blaenavon, Sept. 26.

THE BLAENAVON IRON-WORKS.

SIR.—That experienced practical collier, Mr. T. Deakin, has opened the budget at last, and exposed the misdoings of the Blaenavon Company to the blaze of day; and, if sound practical reasoning goes for anything, will open the shareholders' eyes to their real position. No wonder the company are bankrupt. Is that the way the Crawshays of Merthyr, Guest of Dowlais, and the Baileys of Nantyglo, have realised princely fortunes, and established their characters as the first iron manufacturers in the kingdom? Competition has entirely laid aside that antiquated system of adhering to quality at any cost. Witness the neighbouring works from one end of the line to the other. Blaenavon stands alone—stands, did I say?—is falling. Pennyce work was at one time its strong competitor for "quality," until the quality bankrupted Harford and Davis; and now ask that spirited and practical manager (Mr. T. Brown) is he plodding in the footsteps of his predecessors? Iron manufacture, like others, might have had its commencement without the aid of theory; but is there nothing learned by experience?—50 or 60 years is a long apprenticeship. Shareholders, arouse! bestir yourselves. Here is a mineral property capable of making returns upon your capital. To plead mismanagement will not do; "to remedy it," must be your rallying point. A sound practical iron manufacturing man is wanted; but you will not get one by dipping into the squirearchy of the county. Country squires, with their antique prudences, are not the men to manage iron-works. You are on the brink; and an effort must be made, or your ruin is sure. Sept. 26.

A SHAREHOLDER IN THE BLAENAVON WORKS.

STATE OF UNDERGROUND WORKINGS AT BLAENAVON.

SIR.—Some months ago I pointed out, through your Journal, the imperfect state of the working plans in this district—trying to impress on all concerned the great and absolute necessity of having correct surveys carefully made; for here nothing is thought of cutting into other people's property, and surreptitiously carrying away the minerals—in fact, some small estates have been completely worked out. Your correspondent, Mr. T. Deakin, has fully borne out all I then expressed, in his letter in your Journal of last Saturday; and it is to be regretted he did not come forward sooner, as he must have known it would come to light some day. I should feel obliged to him, if he will tell us if the unfortunate shareholders in this nicely-managed affair are to pay for all the minerals crushed, wasted, and left in such a state, that they must be almost worthless now to any one?—or will the Lord of Abergavenny, who, I believe, is the owner of the minerals, submit to such a fearful loss? It appears to me, that Mr. Deakin's exposition will not put much money into the pockets of the shareholders. Why did Mr. Deakin bring this important question forward at the proper time? he would then have been entitled to the thanks of the company—whereas, now it appears like a mere matter of spleen, directed against the furnace manager, who seems to have kindled his ire. However, better late than never; it will be the means, perhaps, of introducing a better state of things. Mr. Deakin makes insinuations regarding some other company working the minerals of the Blaenavon Company. Why does he not come out with the truth, and tell the unfortunate shareholders what they are to receive from this company? Distant proprietors can know but little of the doings at Blaenavon, which seem to be out of all bounds or discretion. It is notorious, that the Blaenavon Company possess the finest mineral field in Wales; but what did they want with their works on the top of a mountain, removed from water, and often at a standstill for want of it? I quite agree with Mr. Deakin, that one good prac-

tical man could manage better than a host of would-be managers; and no doubt he is, in every respect, well qualified to carry on such an extensive concern profitably. He ought, however, to have told something of this long ago; and now, at the very time the company can ill afford it, they are likely to be plunged into an expensive action at law; and who can estimate the amount of damages, and the loss the company will sustain by the exposition before us? Honesty is always the best policy at last.—OBSERVER: Pontypool, Sept. 26.

BRITISH SMELTING COMPANY.

SIR.—I have watched, with some anxiety, the movements connected with the British Smelting Company, whose advertisement appeared in your columns, and the several communications which have appeared, touching on the advantages likely to arise from its being effectually carried out. From conversation which I have lately had with parties in the mining districts of Cornwall and Devon, on a late visit to those counties, and personal observations, I am satisfied not only would its establishment be a boon to the miner—at the same time, yielding a highly remunerative return to the shareholders—but that some such measure will be necessarily forced upon them from the change of affairs, as touching mining operations in this kingdom. It is not my intention to raise a question as to the late legislative enactment for the admission of foreign ores at a nominal duty, which I must, however, say I much deplore; but it is necessary to advert to the consequences attendant on the passing of that Act, to point out the necessity of the home miners protecting themselves so far as they are able, and indirectly, if not directly, effect the one object which should ever be in view—that of destroying the present existing monopoly. That ores must descend in price as large quantities come into market, is a natural consequence; and the sales of last week (Sept. 21), including the Australian ores, it will be seen, were no less than 2113 tons, producing 27,791*l.*; while the sales for the 5th proximo, amount to 1486 tons, which, taken on an average, at only 10*l.* per ton, would yield (say) 14,860*l.*; to which I may add, irrespective of other imports, the quantity named by you in your last Number, as having arrived in the port of Swansea during the past week from Cuba—2848 tons—the value of which may be estimated in round figures at 28,480*l.*—thus making from Cuba sales alone, on 21st inst., 11,871*l.* 13*s.* 6*d.*; assumed sale, 5th proximo, 14,860*l.*; imported last week, 28,480*l.*, or within one month, a total of 55,210*l.*, and this, be it remembered, from Cuba alone, not to advert to other foreign mines; while the sales from the mines of all Cornwall and Devon do not far exceed that amount. It will be apparent, I think, to the most casual observer, with an influx of ores such as I have named, and not merely put forward as a bug-bear, that the very circumstance of four or five houses having the monopoly of the smelting trade, with which they combine that of metal merchants, is preposterous; and while such be permitted, it stands to reason that the miner must be sacrificed. Land-carriage and freights must be paid; the cost of smelting, or reducing the ores, must in like manner be met; the profit of the smelters well taken care of, and the market prices of metal well considered; and then only is it that the conclave of smelters determine what shall be the price given for the ore, or raw material, perfectly regardless as to whether the price so apportioned will pay the miner for his labour, or the adventurer for his outlay.

It may be said, and, doubtless, will be advanced by many, that the difficulties which present themselves in establishing an independent smelting company, and of destroying the monopoly which exists, forming so heavy an incubus on mining enterprise, are of no ordinary nature; and that they present obstacles which cannot be removed, or the difficulties referred to easily overcome; and I may at once be referred to the English Copper Company, whose failure, after their prospectus, reports, and promises, aided, as I believe they were, in the onset by several influential parties, intimately associated with mining interests, as a practical illustration of the futility of any attempt to contend with the existing powers. I think, Sir, however, if the matter were fairly canvassed, and inquiries instituted, as to the cause of failure, it would be found that such is attributable to circumstances perfectly irrespective of the smelting department. The main cause of failure, doubtless, arose from want of capital, as was rendered manifestly obvious on the occasion of their attempted public sale of tin. If my memory serves me, the intention was to establish quarterly sales; and the first batch was about 1000 tons—the market price having become considerably depressed as the time of sale approached. At the sale, there was an assemblage of those mainly interested, and much excitement prevailed; but, after an exordium from Mr. Mahony, a small lot was knocked down, and it at once became apparent that there were no buyers.

The attempt, therefore, of creating an open or public market for tin, was at once pronounced a failure. However, an adjournment took place, with the like results; and in the end, if I recollect aright, the whole of the lots, amounting to some 65,000*l.* or 70,000*l.*, were nominally bought by Mr. Enthoven, or some other house—it being understood that Messrs. Dabuz, Williams, or others, were parties to the transaction. The monopolists thus took off the market the whole of the tin offered, and which was much in request—the stocks having become considerably reduced; while that of the Miners' Company was in course of accumulation; and thus having secured all the produce, they "worked" the market accordingly. It is necessary that I should offer a word or two as to the means by which this was effected, as it would appear reasonable to suppose, that it was merely a trial of strength, so far as capital was concerned—the Miners' Company being under an obligation to advance to the miner, or mine adventurer, 75 per cent. of the assumed value. This, however, was not the only point; there is such a thing as a ledger kept by these several firms, in which the consumer, or purchaser from the smelter and merchant, is debited from time to time with the value of the metal he may require; and hence it will be found, I believe, ordinarily, if not uniformly, the case, that there is a balance standing against the purchaser. It was, I have reason to know, plainly hinted to the consumers—many of whom held back their orders, waiting the issue of the sale—that there could be no doubt they were at perfect liberty to purchase in the best market, and at the lowest prices. Still it behoved them to settle their small balances, and that henceforth they must needs lay in such stocks at the quarterly sales, as would render unnecessary any application for parcels to their former suppliers. This had its effect; the Miners' Company could not find the necessary capital, so as to maintain their position, and the result was, that the miner and mine adventurer were, in the end, sacrificed, and the independent Miners' Company became one of the "select," and sacrificed principle to interest. The result, however, has proved, that they did not form a correct estimate; while there are many causes which might be named, which have indirectly brought about the failure of the undertaking. It is to avoid the errors so committed that should be the object of any new establishment; and, assuming an ample capital subscribed for the purpose, I have no hesitation in saying that, not only would remunerative returns be made to the capitalist, but, by making an open market, the monopoly now existing would be destroyed, and the miner obtain a fair price for his ores. Let, then, those who are interested in mining undertakings, and more especially deep mines, well weigh the importance of the subject, and in promoting the general weal protect themselves.—H. E.: Sept. 27.

SOCIETY OF ARTS.

SIR.—I was glad to see that "R." in his communication upon the subject of the Society of Arts, in last week's Journal, whilst rendering the homage due to the conduct of our royal president, did not forget to comment upon the workings of the raging disorder now afflicting the secretary and managers of the society—I mean the Art Manufactures' mania, which leads them to see the *summum bonum* in a new form of pickle-jar, or slop-basin, and to give only a secondary place to the wonders of science, whilst there are so many wonderful achievements in crockery ware and articles of *bijouterie* existing in Bond-street.

Doubtless, the encouragement of the application of the fine arts to articles of everyday life is a most meritorious service; but how is this object carried out by the exhibition of *recherché* articles, suitable only to the dwelling of the rich man? and wherefore is it necessary that the above object should so engross the attention of the society, that they only bestow a passing glance on the offspring of science? But the vagaries perpetrated last session have oscillated between the fine arts and the fine ladies; for, will it be believed that, after the Art Manufactures' soirees were ended, another Wednesday evening, which ought to have been devoted to science, was, without consulting the members at large—nor, it is said, the council either—appropriated to the entertainment of such fashionables as could not endure a visit to the society's house at the ordinary times, for fear of coming in contact with some vulgar fellow of an engineer, or machinist, and no one was admitted except authorised so to do by the ladies patronesses!

I trust that the coming session will take its tone from his Royal High-

ness Prince Albert; and, as he has pointed out two very important practical subjects as worthy of attention and reward, the society will not forget that, as the useful arts must exist before the ornamental arts can be called into being, so the former ought to receive their first attention, and the latter be then considered.

As regards the exhibition of pictures, I must say, that the appropriating the rooms of the society to such purpose was wholly unjustifiable: for many are the picture galleries in London—more, indeed, than can be filled with good pictures—and, therefore, the Society of Arts need not add another. As regards the object or purpose of the exhibition, it is, doubtless, laudable enough; but why should the society, which has legitimate work enough, and to spare, on its hands, trouble itself about a matter beyond its province, and one ample enough to form the object of a new association?—A MEMBER OF THE SOCIETY: Strand, Sept. 27.

MINES OF GUADALCANAL.

On the 9th of this month a sloop quitted the port of Hayle, in Cornwall, and favoured by a breeze from the north-east, soon lost sight of land. This vessel had no ordinary destination—a new *Argo*, it started for the acquisition of another golden fleece, placed, not on the romantic banks of Colchis, but in Estramadura, and at the foot of one of the mountains of Sierra Morena. We are not to suppose that this vessel had on board warriors armed from head to foot, with piles of lances, swords, javelins, and other murderous weapons. On the deck were only seen 15 or 20 of the stout sons of Cornwall, instructed from their youth upward in the dangerous pursuit of exploring the entrails of the earth, and thence extracting the precious metals. The cargo consisted of all the tools required by the engineer and miner, with pumps, and a steam-engine of great force; the destination of the sloop was the port of Seville, and the object of the expedition the unwatering and working of the famous silver mines of Guadalcanal.* The history of these celebrated mines is extremely singular: it is well known, that in the times of the ancients, Spain was the most famous soil of Europe for the richness of its metalliferous productions, and from its mines the Carthaginians, and after them the Romans, derived immense sums. Under the rule of the Arabs, the workings continued in many provinces with most successful results. Modern explorers have everywhere found traces of the important labours of these three conquering people. However, the discovery of America, and the possession held by Spain of the richest deposits of gold and silver of the New World, caused the Spaniards to neglect the riches of their own soil. Until the middle of the 16th century, no written document, that in any way referred to the silver mines of Guadalcanal, was in existence, but in 1555 the first news of its discovery was brought to Madrid. Two inhabitants, named Martin and Gonzalo Delgado, had made a discovery on a piece of ground about three miles from Guadalcanal, and were there producing silver ore in large quantities, and very rich in quality. Philip II., of sombre memory, occupied at this moment in carrying on war in Flanders, and converting heretics, had left his sister, the Princess Jane, regent of his kingdom. On the declaration that was made of the discovery by the two inhabitants of Guadalcanal, Jane delivered on the 11th of Oct., 1555, a commission to the Marquis of Falces, governor of the province of Leon, desiring him to examine the mines, and forbid further extraction of mineral therefrom.

In compliance with these instructions, the Marquis of Falces took possession of the mines for the Crown; and his report to the council (extracted from official books and documents in the archives of Simancas, by an order of King Ferdinand VII., dated March 12, 1830, whence all these historical details are deduced) states, that he had ordered the mineral to be assayed by a competent assayer and smelter, who declared to him, and to others, that every quintal (100 lbs.) of the mineral yielded 1 arroba, or 25 lbs., of pure silver—one-fourth. A commission was then issued to Augustin de Zarate (a servant of the Royal household, who had accompanied Philip II. to England, and who had resided some time in Mexico), to proceed to Guadalcanal, and, together with two Germans, John de Xumon and John de Kelder, to work these mines. Zarate obeyed, reached the mines on the 9th November, 1555, and, in a letter addressed to the Princess, asserts that the mineral smelted produced from a third to a fifth of fine silver—a result he had never known, even in Potosi.

From this period (1556) until 1576, the mines were in work by the Government, during which time the fine silver remitted to the mint in Seville, amounted to 400,223 marcs 6 ozs. At this period, the working being retarded by a rush of water, the mines, in spite of many efforts to drain them, became flooded, and Philip II. suspended their workings.

During the earlier part of the 17th century, many efforts were made to unwater the mines, but in vain, although vast sums were expended by the Crown, until, in 1632, a contract was entered into by the Government with J. J. Holzapfel and J. C. Haberlin, in the names of Marcus and Christobal Fucar, brothers, for the working, unwatering, and administration of the "rich mines of Guadalcanal"—the Fucars agreeing to pay to the Crown, as dues, the fourth part of all the gold, silver, copper, lead, or whatever metal might be discovered in the mines, either of Guadalcanal, or others conceded to them, within a league of that space. For four years the Fucars worked these mines with great spirit, and to a depth of 101 fms. The riches extracted from the mines were immense, and to be "rich as a Fucar" passed into a proverb throughout Spain.

Reports then spread abroad that the Fucars had sunk several new shafts—that a rich lode had been discovered, more than half a yard in width—and that great quantities of ore were conveyed away secretly by night, so as to deprive the Crown of its dues. A Royal commission, dated 10th Sept., 1636, was, consequently, issued to Martin de Soto, assayer to the mines of the kingdom, to inspect the mines of Guadalcanal. In compliance with this order, Martin de Soto, accompanied by Gregorio Romero, left Madrid, but, by some unaccountable delay, did not reach Guadalcanal until the 26th December, when the latter advised that, "on the receipt by the factors, or agents, of the Fucars, of notice of the coming of the commissioners, they had at once stopped the engines and all operations for unwatering the mines; and, it being in the depth of winter, all the workings were rapidly inundated." They heard, however, of great riches extracted, and of large veins worked; and that such had been the rapid rising of the waters, on the cessation of the engines, that more than 100 baskets full of mineral had been left in the mines. The agent of the Fucars had sent all the mules and utensils to the mines of Almaden, for which cause De Soto served on him an order of the Royal Council, because he and others, who had absconded in a arm, had frustrated the object of his visit. On the 24th of January, 1637, Martin de Soto, accompanied by his secretary, Christobal de Medina, having inspected the shafts and galleries that were practicable, and ascertained from the workers in the mines that mineral to the value of 12,000,000 ducats had been extracted, caused the factors of the Fucars to be imprisoned. After this, the mines ceased to be worked; but such was their fame that, in 1725, a company was formed in Madrid, with whom Lady Mary Herbert, daughter of the Marquis of Powis, and Mr. Joseph Gage, of Hengrave, in Suffolk, entered into a contract to drain and work them, on condition of receiving £200,000, together with half the profits, when they should be productive; but a dispute arose which caused a lawsuit, whereby the works were suspended; and although, eventually, a decision was given in favour of Lady Mary, she threw up the contract in disgust, and the mines have never since been worked.† Fresh evidence of the existence of argentiferous ore, of very superior kind, was obtained, and exhibited at the court of Charles III. The Spaniards have always considered this as the richest silver lode discovered in Europe, if not in America; and, besides the testimonials already adduced, it may be remarked that Alonso Carranza, who, in 1627, wrote an esteemed treatise on the coins of Spain, asserts that, during the first years, the Guadalcanal mines yielded at the rate of 60,000 silver ducats a week (about 6000*l.* sterling.)

For upwards of a hundred years the mines of Guadalcanal seemed to be forgotten. The great political events, at the commencement of the present century, with which Spain was mixed up—her struggles with France, the enfranchisement of her American colonies, her civil wars, and her protracted internal dissensions, combined to distract her attention from all industrial enterprise requiring a time of peace, and the employment of large capital. Such, however, was the ancient and high reputation of the mines of Guadalcanal, that, in 1830, King Ferdinand VII. commanded a research respecting them in the archives of the kingdom; after which he conceded the Guadalcanal, and other mines, to the celebrated banker Aguardo, although, for some inexplicable circumstances, he never availed himself of the concession. Some years afterwards, certain speculators at Seville and Madrid became desirous of exploring the mines; but, for this important undertaking, there is not only all the experience of practical men, and the application of modern science required, but also a large capital, whilst this new company had but very slender resources, and all their machinery was an old imperfect steam-engine, which had been taken out of a small English steamer: it is easy to foresee the result. After five years' attempts, the powerless engine could not unwater three-fifths of the mine; whilst the funds of the company were completely exhausted. It was at the moment of this latter conjuncture, that several English gentlemen stepped forward; their attention had been directed to the mines of Guadalcanal by Mr. Duncan Shaw, whose practical skill, aided by a long residence in Spain, enabled him to acquire a thorough knowledge of the metallurgical situations in this country; and, on a report made by himself and Capt. Sincock, an association has been formed, which supplied with every necessary document, and a properly drawn up contract, which precisely defines the interests of the Spanish Government; and the con-

* Guadalcanal, city of Estramadura, is 15 leagues from Seville, population 4500. This little town, in the first ravines of the Sierra Morena, is celebrated for its silver mines, worked with immense success in the 16th and 17th centuries.—Bulley's Geography Abridged.

† The ducat of Cambie is equal to 11 silver reals, or 4*s.* 3*d.*; whilst the ducat of commerce is only 11 reals vellon, or 2*s.* 3*d.*

Our celebrated poet Pope was interested in this mine, and advanced a large sum.

The report of this commission was published in 1831 in two thick octavo volumes, by order of the king.

The Spanish Government, desirous of affording every facility, has only stipulated for a royalty of 5 per cent. of the produce of the mine.

cessionaires, has worked quietly, but unremittingly, to carry out this great enterprise; the preparations, and every arrangement, have been confided to Mr. Duncan Shaw and Capt. Mitchell, of Cornwall, for the last six months, and they are now at the mines. Two vessels have left Hayle, to convey to Spain skilful miners, and all the requisite machinery, including a steam-engine of great power, constructed by the celebrated Messrs. Harvey and Co., of Hayle, at whose foundry were cast the three gigantic engines intended to drain the Lake of Haarlem, in Holland. Thus, with every desirable means—most encouraging prospects, adequate funds, the good wishes and good will of the Spanish Government and Spanish people—the association looks forward with confidence to the prosperity of the undertaking.

PEAT.

Having, in a former Journal, briefly pointed out the several useful purposes to which peat (either as a fuel for, or as the basis of, a manufacture) may be successfully applied, and likewise shown its immense importance, in a national respect, we shall conclude, with a few observations on its preparation for ordinary use, and its conversion into coke, or facitious coal. Peat, in an artificial state, makes an excellent substitute for coal—its cheapness more particularly recommending it for domestic purposes. Two tons of it, atmospherically dried, will average, in value, one ton of pit coal. Estimating the cost of the former at rather less than one-third the usual price of the latter, the difference, in point of economy, is at once apparent. As the fitness of the weather cannot at all times be depended on, drying by the action of the atmosphere is consequently very precarious. Various have been the means employed for surmounting this difficulty—trituration, when in a damp state—semi-baking—clothing in hot-air chambers, &c.—have each, in turn, been tried; but, by such processes, the peat loses, as has been demonstrated by subsequent chemical analysis, many of its essential qualities. The expense, too, attending these modes of preparation, precludes the possibility of carrying on the operation to any considerable extent. The manufacturing community, however, is not affected by such failures, as for all metallurgical purposes, charcoal of peat is infinitely preferable. To the production, therefore, of this last-mentioned useful, and almost indispensable material, the attention of practical engineers and others has been mainly directed. There is no less difficulty in producing a pure and dense charcoal or coke. The lower stratum of many peat bogs contains sulphur, sand, iron, &c., which proportionately deteriorates the quality of the fuel—these must be expelled. The advantage, therefore, of any natural peat (the greatest desideratum in the manufacture of peat-charcoal) is sacrificed. Attempts have been made to recover this by extraneous means—viz.: by the admixture of pitch, resin, or other hydron-carbonaceous matter, after the turf has been subjected to trituration, washing, &c., in a moist state—or, ponding, if dry; but, here again it has been found that a facitious coal or coke, so produced, contains little or nothing of the material after which it is called. Happily, all these difficulties have been surmounted, as may be seen in the specimen of charcoal, lately presented to us, from the establishment of Messrs. Davy and Wilkins, South Brent, Devonshire. Those gentlemen have completely succeeded in producing a compact fuel, totally divested of sulphur, which has been analysed and tested by some of the most eminent chemists and engineers of the age, and found not only more economical than, but greatly superior to, any other known combustible. They have proved that peat may be made available for any practical purpose; it is the best, cheapest, and doubtless the original fuel of our earliest manufactures. There is still extant a Royal licence, granted by King John, to the Cornish miners, to dig and carry away turf for smelting their ores. The latter operation has long since been discontinued in the west of England, the miner being content to export his rough material, either to the Principality or the north, where its conversion into pure metal has, in no inconsiderable degree, contributed to the present elevation of those districts, in the scale of manufacturing importance. Henceforth, it is hoped, not only will the Cornish adventurer, but the landed proprietor of Devon, possessors of the richest mineral fields in our empire, avail themselves of the returning opportunity for further developing their incalculable resources. The peat forest of Dartmoor alone, until very recently, treated as an unprofitable waste, contains such an abundant supply, and of quality unequalled (being wholly free from any foreign admixture), as would suffice for all the manufacturing establishments in South Wales. The conversion of this valuable, but hitherto neglected commodity, by simple, and comparatively inexpensive means, cannot fail ultimately to enhance the value of, and give considerable importance to, the surrounding districts. We will venture to predict that, in a very few years, charcoal of wood will be completely superseded, and the importation of charcoal iron into this country be altogether discontinued.

DISCOVERY OF IRON ORE IN BORNEO.—Very rich iron ore has been discovered recently in the so-called Laut-lands, forming the south-east corner of Borneo. Those lands, which belonged formerly to the extensive empire of Banjarmasin, were, at a very distant period, abandoned to the complete sovereignty of the Dutch. They constitute the district of Tanah Laut, or Lawut, whose capital, Tabeno, or Taboeniau, is situated at the mouth of the river of that name, and protected by a fort. It is the residence of a Dutch officer, a dependent of the Resident of Banjarmasin. The discovered iron grounds are situated south-east from Fort Tabeno, near the former flourishing, now deserted, Kampong Tambaga, and at 7 or 8 English miles (2 or 2½ hours) distance south from Kampong Plearie (also called Playhary, or Paluhari), inhabited by Chinese and Malays, engaged in the collection of gold-dust. The above-mentioned grounds are chiefly to be found in the western declivity of a hill of gentle rise, covered all over with stupendous blocks of ore, some of them measuring 500 or 600 cubic feet. Their appearance vouches for the supposition, that they were projected by natural revolutions, and makes it probable with regard to the circumstance of ore being found at a depth of 1½ ft., both on the summit and at the bottom of the hill, that the whole of it is to be considered as one mass of ore. Whatever be the truth of this, it remains as a fact, that the quantity of ore found on the surface is adequate for an exploitation on a large scale, carried on during a long series of years. The local situation affords ample means for such an exploitation. At a distance of about 500 feet from the hill, a level of about 50 or 60 acres is found, which would answer very well for an establishment, and, by its elevation, is protected against a rise of the waters during the wet seasons. Along the plain, runs a rivulet, or little stream, which, according to the information given by the natives, is never left dry, not even during the east monsoons, and which might, perhaps, be very easily converted into a valuable aqueduct, or used as a motive power. Plenty of wood, fit for fuel, charcoal or timber, is to be found in the neighbourhood. The hill itself, the surface of which consists of red clay, intermixed with humus, deteriorated ore, and iron oxide, bears all over an kind of wood, which may be burnt into excellent charcoal.—*New Rotterdam Gazette.*

A DAZZLING SIGHT.—We were yesterday favoured with a sight which made our mouths water for the whole day. It consisted in nine bars of gold, eight of them 4½ inches long, by three quarters of an inch wide, and three-eighths thick. There was a ninth of half size. The whole bars weighed 200 dwts. each, and the half bars 100—making 1700 in all. The value of the whole at 98 cents the dwty, is \$1666. This gold came from the mines of W. M. Moseley and Co., which are situated in the county of Buckingham, and are two in number. At an expense of \$12 per diem at one mine, and \$15 at the other, the company have been in the habit of raising and washing as much as \$75 daily at each.—*Richmond Whig.*

THE "VLADIMIR" RUSSIAN STEAM-FRIGATE.—This fine war steamer, built by Mr. Mare, and fitted with engines by Messrs. G. and Sir J. Rennie, for his Imperial Highness the Emperor of Russia, left Blackwall at 9½ o'clock A.M. on Saturday last, on an experimental trial, the tide running up at the time, and proceeded at the measured mile in Long Reach, going twice down and twice up, making an average speed of 11 knots per hour. Her nominal power is 400-horse, but the actual power, as shown by the indicator card, was 1200-horse, or three times greater. The engines worked remarkably smooth and steadily, and the different operations of stopping, backing, forwarding, and disengaging, were all performed in a very satisfactory manner, without the slightest symptom of those derangements incidental to a first trial. The entablature, or head stock, which supports the main or paddle-wheel shaft, is of wrought iron. The cylinders are on the horizontal and oscillating principle, 73½ in. diameter, with a 6-ft. stroke, with steam in the boilers 12½ lbs. to the square inch, making 19 revolutions of the paddle-wheels per minute, the diameter of the wheels being 25 ft. 4 in., and the immersion 4 ft. 9 in. The air-pumps are worked by vibrating trunks without guides. Two valves or slides are attached to each engine and wheel, and act as counter-balances. They are worked by four connecting-rods, these being worked by four eccentric rods, fixed on the crank-shaft, by a peculiar apparatus, similar to that of a locomotive engine—a plan first introduced by Messrs. Rennie in marine engines. The vessel is 1200 tons burden, with 14 ft. draught of water on an even keel, with all her guns, stores, and water on board, and her displacement is so nicely adjusted, that she answers her helm immediately, and in several trials came round in three minutes. The weather deck has been paved with Jeffery's marine glue, and is remarkably clean. She carries 88 guns, 10 ft. long each, and all mounted on traversing platforms, made of African teak, with Lieutenant-Colonel Colquhoun's recent improvements for attaching them to the pivots, and assisting to run out the guns. Two of Capt. Smith's paddle-box boats have been fitted to the vessel. The binacles of her steering compass are beautifully constructed, and the glasses are convex. The whole of the gratings over the cabin windows and the windows of the engine-room, are of solid brass, and on a platform above the engine-room, connecting the two paddle-boxes across the deck, a steering wheel has been placed, immediately in front of the chimney, at a height of 12 ft. from the deck. The Emperor's cabin has been built on deck, and is exactly similar to the temporary erection fitted up for his Imperial Highness in the *Black Eagle*, when the Emperor visited this country. The internal fittings of the principal cabins are appropriate and beautiful, and the vessel was launched with great credit on her constructor, and those who tried her. The *Vladimir* will leave Blackwall on Saturday next for Cronstadt, under the command of Commodore Korniloff, with Capt. Arlman, and First-Lieut. Purchase.

HOLLOWAY'S PILLS, A SUPERIOR REMEDY FOR AFFECTIONS OF THE CHEST AND DIAPHRAGM OF THE LUNGS.—Bridget McBride, a respectable young woman, residing at Carrigroh, Ireland, was afflicted with a severe affection of the chest, from which cause her breathing and articulation had become so extremely difficult, that the general opinion, even of medical men was, that the lungs were diseased; failing to obtain relief from other sources, she commenced taking Holloway's pills, and so rapid has been her recovery by the use of this invaluable medicine, that it appears quite miraculous. These pills are equally efficacious in curing old coughs, recent colds, asthma, sore throats, and all pulmonary disorders. Sold by all druggists, and at Professor Holloway's establishment, 314, Strand, London.

THE BRITHDIR COLLIERY, NEWPORT, Monmouthshire.
Is now in regular WORK, and capable of SUPPLYING from ONE HUNDRED to TWO HUNDRED TONS of COAL PER DAY. The coal is free from stone, slate, or sulphur, is a most excellent house coal—makes a very superior coke, and, for smithies and forges, considered to be the best in the port.
Price of large coal..... 6s. 6d.
Small..... 6 0
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Payment by approved bills, at two months from date of shipment, or 2 per cent. for cash.—Address Mr. Dickland, agent to the Brithdir Coal Co., Newport, Monmouthshire.

BOILER EXPLOSIONS.—TO ENGINEERS, MILL-OWNERS, AND OTHER PARTIES USING STEAM-POWER.
Mr. EDWARD WALMSLEY calls the attention of the above to a MODIFICATION of his PATENT APPARATUS for the PREVENTION of STEAM-BOILER EXPLOSIONS, which he has now fitted up at the under-mentioned places, and may BE SEEN IN OPERATION at any time during working hours. It is simple, effective, inexpensive, and not liable to get out of order.
At Mr. Edward Walmsley's, Blackfield Mills, Heaton Norris, Stockport; Mr. Henry Gore's, machine-maker, &c., Lever-street, Manchester; Messrs. Thomas Grundy and Co.'s, machine makers, Preston.

DUNN'S PRACTICE OF COAL MINING.—A FEW COPIES of this TREATISE are yet ON HAND, which will be sent to order by the author.—Address Matthias Dunn, mine engineer, Newcastle-upon-Tyne.

PATENT FLEXIBLE INDIA-RUBBER PIPES AND TUBING, for Railway Companies, Brewers, Distillers, Fire-Engines, Gas Companies, Gardening and Agricultural purposes, &c.

THE PATENT VULCANISED INDIA-RUBBER HOSE-PIPES are made to stand hot liquor and acids, without injury—do not become hard or stiff in any temperature (but are always perfectly flexible); and as they require no APPLICATION of oil or dressing, are particularly well adapted for Fire Engines, Pumps, Gas, Beer-Engines, Gardens, and all purposes where a perfectly Flexible Pipe is required. Made all sizes, from ½-inch bore upwards, and of any length to order.
Vulcanised India Rubber Garden Hose, fitted with brass-taps, Copper branch and Rose's complete, ready to be attached to pumps, water-butts, or cisterns.
Sole manufacturer,
Goswell Mews, Goswell-road, London.

EMERSON'S PATENT LIQUID CEMENT.—This VALUABLE and ECONOMIC PAINT is READY FOR USE—is simple in its application, and only one-sixth the cost of oil paint; for beauty, it is pre-eminent over all other materials used on the fronts of houses—giving the exact appearance of FINE CURRANT, and is particularly adapted for country houses, villas, or gate entrances that have become soiled or dingy, which can be at once beautified in any weather, at a mere trifling cost.
* Sold in cakes of 1 and 2 cwt., at 8s. and 15s. each.

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A brilliant black paint, invaluable as a coating for SHIPS' SIDES and BOTTOMS; also for all kinds of WOOD or METAL WORK, or the asphaltic roofing felts, leaky roofs, spouts, and gutters, doors, sheds, railings, and all kinds of out-door work; and, being perfectly waterproof, will preserve their surfaces from atmospheric influence and decay; requires no preparation, and will dry in a few hours.—Price 2s. per gallon.
PATENT ASPHALTE ROOFING FELT, of the best quality, at 1d. per square foot, in pieces, 25 yards long and 32 inches wide.—GEORGE LEAR & CO., Sole Agents for the Patentees, 16, Basing-lane, Chesham.

PATENT IMPROVEMENTS IN CHRONOMETERS, WATCHES AND CLOCKS.—E. J. DENT, 82, Strand, and 33, Cockspur-street, watch and clock maker, BY APPOINTMENT to the Queen and his Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1836, 1840, 1842. Silver lever watches, jewelled in four holes, 6 gs. each; in gold cases, from £8 to £10 extra. Gold horizontal watches, with gold dials, from 8 gs. to 12 gs. each.

DENT'S PATENT DIPLIDOSCOPE, or Meridian Instrument, is now ready for delivery.—Pamphlets containing a description and directions for its use, 1s. each, but to customers gratis.

GEOLOGICAL DISCOVERY.—A highly interesting geological discovery has been lately made at the Pentwyn Iron-Works. While the workmen engaged in one of the mine levels were proceeding with their operations, they encountered a fossil tree of considerable size; and the attention of Mr. Cadman, the intelligent mining agent of these works, having been called to it, he directed every exertion to be made for its preservation. The surrounding material was consequently removed with the utmost care, and every part of the fossil having thus been preserved from injury, its structure was most clearly developed. The stratum in which it was embedded was a blue siliceous shale, containing iron ore, and forming a moderate angle of inclination with the horizon. The tree was in an erect position, and perpendicular to the plane of stratification. A thin coating of coal, apparently the carbonised bark, enveloped it, which could be readily scraped off with the nail, and was so friable as to render it impossible to discern the character of the external markings. The internal cast, however, partook of the same nature as the surrounding stratum; and, beneath the coaly covering, there were evident indications of flutings, or longitudinal striae, the appearance of which was very similar to that presented by decorated trunks of recent forest trees. The base of the trunk thickened out considerably, and large spreading roots projected on every side. The circumference of the base, immediately above the junction with the roots, is 6 feet, and from thence it diminishes to 4 ft., in a height of about 5 ft., beyond which it has not yet been followed. We are decidedly of opinion that this tree grew on the precise spot where it is now found, and consider it to be a variety of the *Sigillaria*, of which about 40 species have been discovered in the coal measures.—*Hereford Times.*

COAL MARKET, LONDON.
PRICE OF COALS PER TON AT THE CLOSE OF THE MARKET.

MONDAY.—Hastings's Hartley 16 6—New Tanfield 13 6—Walker's Primrose 12—Wall's End Bewick 10 4—Brown's 13 6—Gosforth 14 6—Hodley 14 6—Hilda 14 3—Killingworth 14 3—Wainwright 13 6—Eden Main 15 9—Lambton Primrose 15 6—Belmont 15 9—Bell 15 9—Hetton 16 6—Jonasdon 13 6—Lambton 16—Morrison 14 6—Stewart's 16 9—Kelroe 15 3—Trindon 16—Adelaide Tees 15 6—Denison 15—Seymour Tees 15—South Durham 14 6—West Cornforth 15 3—Whitworth 14 6—Anthraxite 25—Copen Hartley 16—Derwentwater Hartley 16—Hartley 16—Lewis's Merthyr 19—Ships at Market, 89.

WEDNESDAY.—Chester Main 14—Davison's West Hartley 16 6—Holywell Main 14 6—New Tanfield 13 6—North Percy Hartley 16—Ord's Redhenge 12 6—Towney 13 6—West Hartley 17 6—Eden Main 16—Anthraxite 25—Parson's Abbey Gravel 21—Powell's Duffryn 18 6 to 18 9—Wall's End Anthracite 25—Brown's 14 6—Hodley 14 9—Hilda 14 6—Belmont 15 9—Bell 15 9—Hetton 16 9 to 17—Hawwell 17 6—Morrison 14 9—Stewart's 16—Richardson's Tees 14—Seymour Tees 15 6—Tees 16 3—Tees Hutton 14—Trindon 15—Whitworth 14 6—Ships at market, 53; sold, 41.

FRIDAY.—East Adair's Main 13—New Tanfield 13 6—North Percy Hartley 16—Lambton Primrose 15 6—Powell's Duffryn 18 6 to 19—Wall's End Percy Bonham 14 3—Riddell's 14 3—Castle Eden 15—Hetton 16—Hawwell 17 6—Lambton 16 6—Russell's Hutton 16 6—Caradoc 16—South Hartlepool 15 9—Thornley 15 9—Adelaide Tees 15 9—Denison 15—Tees 16 6—West Cornforth 15—Elm Park 15 3—Ships, 64; sold, 41.

NEW PATENTS.
R. S. Newall, Gateshead, Durham, for improvements in locks in springs, and in the means of fastening and setting up the rigging of ships.
P. H. Halliday, Manchester, manufacturing chemist, for certain improvements in the manufacture of pyrolytic acid.
F. Allman, Charles-street, St. James's-square, Westminster, consulting engineer, for certain improvements in apparatus for the production of light from electricity.
W. W. Nicholson, Acton-street, Gray's-inn-road, C.E., for improvements in machinery for compressing wood, and other materials requiring such a process.
J. Gillott and J. Morrison, Birmingham, for improvements in ornamenting cylindrical and other surfaces of wood and other material.

DESIGNS FOR ARTICLES OF UTILITY REGISTERED.
Hammond, Turner, and Sons, Birmingham, eye (hook and eye).
F. Mordan, Goswell-road, adjusting everlasting gold pen.
S. H. Park, Kingswood, Gloucestershire, nut key or spanner.
T. Hunt, Preston, metallic packed gland.
F. Marsh and Co., Castle-street, East, Oxford-street, oriental shower bath.
S. P. Babington, George-street, Hanover-square, hat peg, or support.—*Mechanics' Mag.*

ACCIDENTS.
Copen Colliery.—W. Innoy was killed by a fall of coal.
Whitehaven.—P. Denvar was killed in the William Pit, while riding on a basket filled with coals.
Merthyr.—As T. Edwards and W. Williams were using their bars, to unlodge the limestone at the top of Gurnos Quarry, at a height of 26 yards from the bottom, both fell down, and Edwards survived only half an hour. Williams sustained severe injuries, but strong hopes are entertained of his recovery.

Colliery Explosion.—On Saturday last Mr. Dearden held an inquest, at the Black Bull Inn, Middleton, on the body of J. Wild, miner. W. Mitchell, coal miner, said, that on Wednesday he and others went to their work at Little Green coal-pit, belonging to Messrs. Wild, Andrew, and Haigh. The pit was about 70 yards in depth, and the seam 30 in. in thickness. There were four seams in the pit. He had worked there above two years. They used safety-lamps when required. The men had all been told not to go into that part of the mine where the accident occurred; it was about 50 yards from the shafts. The deceased, T. Cheetham, and a boy about 13 years of age, went into that part of the mine. Cheetham had a candle with him when the explosion took place. He was very badly burned, though the boy was not injured; but the deceased was very much burned, and also injured on the left side, so that he died at four o'clock on Friday morning.—The boy, N. Wood, said he was about four yards from Wild when the explosion took place. They had all candles. He had a spade in his hand, and it was blown out of it, but he was not hurt. The blast went over his head. This boy corroborated the evidence of the last witness, and said that the deceased had been told not to enter that portion of the mine. The jury returned a verdict of "Accidental death." Cheetham, the other miner who was injured, died on Monday morning.

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Prospectuses and forms of application for shares (which will be allotted on the 9th October) may be obtained of the honorary secretary, 34, Broad-street-buildings, London.
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THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY BOOK PASSENGERS and RECEIVE GOODS and PARCELS for the ABOVE PORTS by their steamers—starting from Southampton on the 20th of every month; and from Suez on or about the 10th of every month.

BOMBAY.—Passengers for Bombay can proceed by this company's steamers of the 29th of the month, to Malta, thence to Alexandria by her Majesty's steamers, and from Suez by the Honorable East India Company's steamers.

MEDITERRANEAN.—MALTA—On the 20th and 29th of every month. CONSTANTINOPLE—On the 29th of the month. ALEXANDRIA—On the 20th of the month.

SPAIN AND PORTUGAL.—Vigo, Oporto, Lisbon, Cadiz, and Gibraltar, on the 7th, 17th, and 27th of the month.

ITALY.—Genoa, Leghorn, and Civita Vecchia, at intervals of six weeks. The next vessel will leave Southampton at Two P.M. on Saturday, the 7th of October, 1849.

For plans of the vessels, rates of passage-money, and to secure passages, and ship cargo, apply at the company's offices, No. 122, Leadenhall-street, London; and 57, High-street, Southampton.

NOTICE TO SHIPPERS OF GOODS AND PARCELS.
per PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY'S STEAMERS, to INDIA AND CHINA.—GOODS and PARCELS sent direct to the company's parcel offices, on or before 6 P.M., on the 17th of each month, are forwarded at less cost to shippers than when sent through any intermediate channel. Cases must not exceed 112 lbs. weight each, for Aden, Ceylon, Madras, Calcutta, and China; and 40 lbs. each case for Bombay. No package for India or China can, under any circumstances, be shipped at Southampton, unless it be cleared through the Custom-house, and placed alongside the steamer by noon on the 19th of each month.
Detailed particulars can be obtained on personal application, or by writing.
Parcel Department, 122, Leadenhall-street.

RAILWAY AND OTHER IMPORTANT RECORDS, EFFECTUALLY PROTECTED FROM DAMP AND VERMIN.

Extract from the Appendix to the Second Report of the Commissioners on the *Pins Arts*.
"In 1839, I superintended the construction of a house, of three stories, on the Lac d'Engelheim. The foundation of the building is constantly in water, about 19½ inches below the level of the ground floor. The entire horizontal surface of the external and internal walls was covered at the level of the internal ground floor with a layer of

SEYSEL ASPHALTE, less than half an inch thick, over which coarse sand was spread. Since the above date, no trace of damp has shown itself round the walls of the lower story, which are, for the most part, painted in oil, of a grey stone color. It is well known that the least moisture produces round spots, darker or lighter, on walls so painted. Yet the pavement of the floor, resting on the soil itself, is only about 2½ inches above the external surface of the soil, and only 19½, at the utmost, above that of the sheet of water. The layer of asphalt having been broken and removed, for the purpose of inserting the sills of two doors, spots, indicating the presence of damp, have been since remarked at the base of the door-posts.

THE DIRECTORS of the SEYSEL ASPHALTE COMPANY have much pleasure in recommending to the notice of ENGINEERS and ARCHITECTS the application of the ASPHALTE of SEYSEL, as the only effectual mode of preventing damp in basement floors, and water from percolating through the ARCHES of a VIADUCT.

The arrangements of this company enable works of any extent to be executed with the greatest promptitude.
I. FARRELL, Secretary.

SEYSEL ASPHALTE DEPOT, STANGATE, LONDON.
ESTABLISHED 1838.

* This method has been adopted at the New Houses of Parliament.

FOURDRINIER'S PATENT SAFETY APPARATUS, for PREVENTING ACCIDENTS IN MINES AND OTHER PLACES, WHEN THE ROPE OR CHAIN BREAKS.

By the ADOPTION of this INVENTION the LIVES of the WORKING MINERS may be PRESERVED, and the PROPERTY of the MINE OWNERS PROTECTED from the serious consequences of either of the following accidents—viz.:

1. From the men, or the load, being precipitated to the bottom of the shaft when the rope or chain breaks: in this case the apparatus is self-acting.

2. From either the men, or load, being drawn over the pulley: in this case, also, the apparatus is self-acting.

3. From the fearful consequences to men or load of a "whirl," or run: in this case the result is equally certain.

A COAL PIT, with the SAFETY APPARATUS ATTACHED to the CAGE, is daily at WORK near BURSLEM, in the STAFFORDSHIRE POTTERIES.

To inspect the apparatus, or to obtain any further information, application may be made Mr. Edward N. Fourdrinier (the patentee), Cheddleton, near Leek, Staffordshire; or Mr. Joseph Fourdrinier, 9, College-place, Camden Town, London—who are prepared GRANT LICENSES for the USE of the PATENT.

LAP-WELDED IRON TUBES, W. H. RICHARDSON, Jun., and Co., MANUFACTURERS of every description of WROUGHT-IRON TUBES, for Locomotive and Marine Boilers, Gas, Steam, and other purposes.

PATENT TUBE WORKS, DARLSTON, STAFFORDSHIRE.

GUTTA PERCHA.—BOOTS AND SHOES, SOLED with this MATERIAL, being eminently non-conductors of heat, are exceedingly pleasant wear for tender feet, and however slight the soles, impenetrable by showers or salt-water—therefore, invaluable to SPORTSMEN, TOURISTS, and VISITORS to the SEA-SIDE.

The idea that atmospheric heat has any detrimental effect upon Gutta Percha is a fallacy, and in no known instance have soles failed in adhering, which may not be ascribed to neglect of the company's printed directions. The more recent productions in Gutta Percha are elaborate cornices, highly enriched console tables, moldings, panellings, picture-frames, &c., in every variety of finish and relief, dessert services, flower vases, fountains, stands, medallions, buckets, bowls, bottles, pen trays, &c. Tinting of all sizes, from ¼ of an inch to 4 inches diameter. For lining cisterns, sinks, galvanic troughs and batteries, Gutta Percha offers innumerable advantages; and, being impervious to water, unaffected by acids, alkalies, &c., it may fairly be said to be the discovery of the age.—May be had of the

GUTTA PERCHA COMPANY 18, Wharf-road, City road, and of any of their wholesale dealers.

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When economy in expenditure of material and time is of importance, these dyes will be found of the greatest advantage, as they give a rich colour to plain woods, which they reflect all the beauty of the natural grain, which is so superior to imitations by oil and, at the same time, avoid the disagreeable smell and deleterious consequences of paint.

The DYES, or STAINS, are prepared and sold by HENRY STEPHENS, 54, Stamford-street, Blackfriars-road, London, in bottles of 6d. and 1s. each, and at 8s. per gallon. They may be obtained in powder at 8s. per lb., which dissolves in water to form the liquid, and 1 lb. will make one gallon of grain. Sold also at the office of *The Builder*, 3, York-street, Covent-garden, London; also, by Hopkins and Purvis, Greek-street.

N.B.—The trade supplied.

Also his COMPOSITIONS FOR WRITING WITH STEEL PENS.

STEPHENS'S WRITING FLUIDS compose the most splendid and durable colours, and the most indelible compositions which art can produce. They consist of—

A BLUE FLUID, changeable into an intense black colour.

PATENT UNCHANGEABLE BLUE FLUIDS, remaining a deep blue colour. Two sorts are prepared—a light and dark blue.

A superior BLACK INK, of the common character, but more fluid.

A superior CARBINE RED, for contrast writing.

A liquid ROUGE CARBINE, for artists and contrast writing, in glass bottles.

A carbonaceous RECORD INK, which writes instantly black, and being proof against any chemical agent, is most valuable in the prevention of frauds.

A liquid MECHANICAL and ARCHITECTURAL DRAWING INK, superior to Indian Ink.

MARKING INKS for linen; select STEEL PENS; INK-HOLDERS.

Prepared by the inventor, HENRY STEPHENS, 54, Stamford-street, Blackfriars-road, London; and sold by all booksellers and stationers every where.

In Bottles, at 1d., 3d., 6d., 1s., and 3s.

PROFESSIONAL LIFE ASSURANCE COMPANY, Connecting the Clerical, Legal, Military, Naval, and Medical professions, and holding out advantages to the public not hitherto offered by any similar institution.

Established upon the mixed, mutual, and proprietary principle.
Rates essentially moderate.—Every description of policy granted. Immediate survivorship, and deferred annuities; and endowments to widows, children, and others.—Every policy (except only in cases of personation) indisputable.—The assured permitted to go to and reside in Canada, Nova Scotia, New Brunswick, Australia, Madeira, Cape of Good Hope, and Prince Edward's Island, without additional premium.—Medical men remunerated for their reports.—Loans granted on real or personal security.—One-tenth of the entire profits appropriated for the relief of the assured while living, and of his widow and orphans.—Annuities granted in the event of blindness, insanity, paralysis, accidents, and any other bodily or mental affliction, disabling the parties.—Persons of every class and degree admitted to all the advantages of the corporation.—Rates for assuring £100 at the age of 25, 35, 45, and 55, respectively—namely, £1 14s. 6d., £2 5s. 6d., £3 4s. 3d., and £4 18s. 6d.

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London: Printed by RICHARD MIDDLETON, and published by HENRY ENGLISH (the proprietors), at their offices, No. 26, Fleet-street, where all communications are requested to be addressed. [September 30, 1849.]